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See opposite page

ADDRESSES AND ORIGINAL ARTICLES

THE EXPERIMENTAL OUTLOOK IN SURGERY *

BY SIR DAVID WILKIE, M.D., F.R.C.S.
PROFESSOR OF SURGERY, UNIVERSITY OF EDINBURGH

IT is difficult to assign to discoveries in medicine their rightful place in order of importance. Some would place the work of Lister, in demonstrating the microbic nature of wound infection and the means of preventing it by chemical or other disinfection, in the premier place, both as a scientific and a beneficent discovery; others might dwell on the discovery of the parasite of malaria and its mosquito-borne spread as a contribution of world-wide significance; and yet others might point to Ehrlich's work on the therapy of syphilis, and with it certain tropical diseases, as inaugurating a new era of chemotherapy.

HARVEY

Epoch-making and beneficent as all these discoveries have proved to be, they have not the fundamental significance of Harvey's contribution. The discovery that the blood circulated, driven onwards by the heart, was epoch-making in the truest sense of that oft ill-used term, but it was only one product of an outlook and a method which Harvey gave to medicine. To be the father of a point of view, of an approach to problems which change the whole basis of our study of disease is a real distinction, but when that method is the simple logical search for truth applicable to any investigation of any problem of biology the distinction is outstanding and unique. Harvey's method of careful unbiased and unfettered observation, the formation of a hypothesis, and the testing of this by experiment, has not only stood the test of time but has formed the essential basis of the contributions of all his famous successors—John Hunter, Claude Bernard, Pasteur, Koch, and Lister.

To have broken loose from the bondage of medieval theory and practice and to have done it with a simplicity and yet a completeness which still commands our admiration, in this lay the genius of Harvey. He showed a way of discovering scientific truths. His method of anatomical observation, of studies in comparative anatomy, and on these of constructing a hypothesis had been the method of Vesalius, and to some extent of Galen, but these two had relied but little on experiment—the keystone of the arch. Doremberg, the French medical historian, said of Harvey: "He considers a long time and he finishes by seeing; he makes few experiments but they are decisive; he uses few arguments but they are conclusive." What would not his methods yield to-day if applied in their noble simplicity in the innumerable opportunities which surgery offers of making observations of disease in the living human being. The need for cultivating the Harveian outlook is as great to-day as ever it has been and especially for those who mean to practise surgery.

HUNTER

John Hunter did for surgery what Harvey did for medicine as a whole. Hunter is said to have read but few books, choosing the face of Nature as his instructor and his guide. One book, however, did not escape him and it is easy to imagine the thrill with which he must first have read "De Motu Cordis" and the fierce ambition that it kindled in his breast. The insatiable curiosity and restless activity of this perfervid Scot claimed the whole realm of Nature as their field. Following closely the method of Harvey but with tenfold the zeal and tireless energy, Hunter observed, questioned, experimented, and thus awakened once again the scientific urge which is the stimulus to progress.

Hunter has often been described as the father of modern surgery. As such he founded his family on the sure foundation of a never-ending quest for scientific truth. His search for the secrets of life and growth gave a new significance to medical study and raised the status of surgery from that of a mere handicraft to the dignity of a science. The glamour of the discoveries of Pasteur and of Lister overshadowed for a period the true worth of Hunter's contributions; of late, however, the importance of tissue growth and reaction, the influence of internal secretions and of vitamins, the significance of the soil as opposed to the seed, these have taken us back to Hunter and to his search for fundamentals.

What a joy to Harvey would have been a day with Hunter in his animal sheds and his museum! He would have gone home late to bed a tired but very thankful man, having seen in full fruition the tree of scientific method which he planted just a hundred years before.

It was in the anatomical and surgical class-room, and in the experimental laboratory of Hunter, that Jenner got the outlook and the point of view which led him to test the effect of inoculating cow-pox as a safeguard against small-pox. We thus see that the experimental outlook in surgery gave the stimulus to Jenner's great experiment in practical immunity. If this happy harmony of outlook had continued unabated through the years what a wealth of useful knowledge had been gained and what a burden of suffering avoided. Alas! for a period the sciences of surgery and of infective disease parted company to meet again after more than half a century of wandering in the wilderness.

Study of Infections

There is no more fascinating study than that of the rôle of surgery in the treatment of infections and the part played by infection in frustrating the curative efforts of surgery. For the first three-quarters of the nineteenth century the heroic attempts of surgeons to aid the suffering by operation became progressively more futile as the hospitals became infected with germs of mounting virulence. It was one of the greatest and most tragic experiments the world has ever seen, this proof that germs become more virulent by successive passage through susceptible human beings. When J. Y. Simpson advocated the burning of the old hospitals and the building of temporary wooden structures in their stead, he was pronouncing a logical, if somewhat heavy-handed, method of exterminating virulent infections.

If Semmelweis had but held on when he had convinced himself that, by making the students coming from the dissecting-rooms wash their hands in a solution of chloride of lime before examining pregnant women, he could in great measure prevent puerperal septicæmia, if he could have staged a crucial

* A lecture delivered before the Harveian Society on March 11th, 1937.

experiment as Pasteur did at Chartres, how willingly would Lister have handed him the palm as the greatest benefactor of mankind. Semmelweis had the great idea and, if he had not the philosophy to withstand the inevitable repercussion which the impact of a new idea elicits from the innate conservatism of the uninspired human mind, he must ever be regarded, with the sympathy due to the misunderstood, as the forerunner of a new age in surgery.

Pasteur laid bare the secret. The successive steps in his work on fermentation, silkworm disease, anthrax, and rabies, the satisfying completeness of his proofs and the simplicity yet thoroughness of his experiments furnished the pattern and the implements for the experimental work on wound infection.

LISTER

When Lister, already with the idea in his mind, came to Edinburgh to study surgery under Syme, he was possessed with the thought that in the solution of this problem of wound infection lay the whole future of surgery. Several factors combined to favour his investigation. Firstly, as he repeatedly avowed, he found the atmosphere in Syme's clinique sympathetic and helpful in his work; secondly, he had already had some training in scientific methods and outlook; and thirdly, he was interested in and conversant with discoveries in the fundamental sciences and thus had read of Pasteur's remarkable experiments. Only the mind trained in the experimental method could appreciate the significance of Pasteur's work and the possibility of its application to the suppurating wounds and the pyæmia of the wards. As Sir Frederick Gowland Hopkins pointed out in his presidential address to the Royal Society, the fundamental sciences are the source from which clinical observation and clinical analysis must always derive their impulse for advance. It was in the laboratory of Pasteur that the germ theory of wound infection had its beginning, it was through the scientifically trained surgeon, versed in the literature of the fundamental sciences and capable of correlating and combining the bedside with the laboratory experiment, that the vital gap was bridged and the supreme benefit to suffering mankind conferred.

The care, the step-by-step advance, the personal attention to every detail of the proof, these characteristics of Lister's work were what impressed his students and the surgeons from abroad who visited his wards, both in Glasgow and in Edinburgh. His implicit faith in the victory of truth gave him the calm philosophic outlook which poor Semmelweis had lacked and which commanded attention, respect, and admiration from his students and from all but the most biased and petrified among his surgical contemporaries. It does not detract from Lister's immortal work for humanity any more than it does from Harvey's great induction, to say that it was not the work of one mind. "To perfect is to invent. All investigators inherit from their ancestors and Truth is the daughter of Time."

The discovery of the cause and the means of prevention of wound infection gave not only an immense impetus to helpful and curative surgery and an untold relief from suffering and death to those who needed operation, it gave new opportunity to both clinical and experimental research by removing one uncertain and complicating factor which heretofore had vitiated all observations and results.

The Rise of Abdominal Surgery

The history of abdominal surgery in pre-Listerian times has many interesting pages and gallant episodes. The intrepid ovariotomists, with Ephraim McDowell at their head, had in many instances been country surgeons, operating far from crowded cities and infected hospitals, and the hardy peritoneum had withstood in many cases the relatively avirulent infection introduced. The domestic type of cleanliness, practised by Lawson Tait, was so successful as almost to confuse the issue for others as it did for him. The demonstration by Lembert, also a country surgeon, that an inverting suture rendered the closure of intestinal wounds both simpler and safer, laid the foundation of gastro-intestinal surgery. Surgeons were waiting for the lifting of the ban that post-operative peritonitis had imposed. It was, therefore, not unnatural that in the early 'eighties of last century an immense amount of work should have been done on the surgery of abdominal diseases.

ALIMENTARY TRACT

The successful removal of tumours of the stomach or intestine demanded a technique, the perfection of which could only be attained by experiment, and to the patient and controlled work of Wölfler, Czerny, Gross, and Senn we owe successive steps in the building up of reliable and simple methods of anastomosis. That indefatigable student, Samuel Gross, did valuable experiments on the suture of wounds of the intestines, but it was Nicolas Senn who was the most fruitful worker among the early experimenters in gastro-intestinal anastomosis. Night after night he could be found at his experiments in a small laboratory constructed under the sidewalk of his home in Milwaukee. At medical meetings he always contributed personal experimental observations and brought with him the specimens from his experimental laboratory—a worthy descendant of Hunter and of Harvey.

In 1881—the annus mirabilis of abdominal surgery—Billroth's clinic in Vienna was the scene of the premières of many surgical procedures. Among these was partial gastrectomy for cancer, and gastro-jejunostomy, first performed by Wölfler on the suggestion of his assistant Nicoladoni in a case of irremovable carcinoma of the pyloric antrum. The zealous care with which Billroth supervised all these early operations, and the close collaboration which he encouraged between the experimental laboratory and hospital operating theatre, favoured the rapid strides which surgery made at this eventful time.

Mikulicz, one of Billroth's assistants, played a leading part in the development of abdominal surgery. As professor of surgery in Breslau, he was unceasing in his efforts to extend the scope, and especially to increase the safety, of abdominal operations. The exterioration of tumours of the colon and their removal by a two- or three-stage operation was introduced by Paul actually before it was by Mikulicz, and to both surgeons credit is due for a method which effected a great reduction in mortality. Mikulicz introduced the practice of giving nucleinic acid before operation to induce an artificial leucocytosis, proving by animal experiment that resistance to peritoneal infection is thereby raised. Later, in Edinburgh, it was shown that by combining the injection of vaccines of *Bacillus coli* and streptococci with the nuclein injections, the immunity to peritoneal infection could be further enhanced.

Pfannenstiel, in Kiel, showed that by injecting sterile olive oil into the peritoneum an increased local resistance to infection was brought about; indeed it became evident that any irritation or insult to the peritoneum called forth a reaction which was protective against subsequent infection. This fact

constituted one of the main factors of safety in the two-stage abdominal operation in which the dangerous stage is left to be the second step.

EMERGENCIES

Whilst the surgical treatment of certain acute abdominal conditions, such as strangulated hernia, goes back to antiquity, the surgery of acute abdominal emergencies belongs to the post-Listerian epoch. As such operations increased in number and as, by correlation of operative findings with clinical symptoms, diagnosis became more accurate, there was a tendency to regard immediate operation as the panacea for all such conditions. Continued clinical investigation linked up with experimental work has shown us that, in certain conditions and at certain stages, operation may be both meddlesome and harmful, whilst in others every hour that operation is delayed adds to the risk of death.

In obstruction of the bowel we have learnt to distinguish between the various fundamental types, and the cause of death in each, and thus to put our treatment on a rational basis. The realisation that in simple high intestinal obstruction the main lethal factor is loss of fluid and chlorides, and that if these be supplied in adequate amount life may be prolonged for weeks even if the obstruction be not relieved, has made the administration of salt solution an essential first step in our treatment of such obstruction.

We know that in closed loop obstruction or in strangulation the tendency to rapid necrosis and infection of the wall, with gross perforation or bacterial permeation and peritonitis, makes not only the need for early operation clamant but the need for radical surgery clear. A clinical impression that when in the least doubt it was wiser to resect a strangulated but possibly still viable loop has received abundant confirmation from the experimental laboratory. Further, in cases of strangulation it has been shown that the fluid exuding into the peritoneal cavity from the strangulated loop contains toxic elements, and its removal by suction is desirable.

On the other hand in inflammatory lesions within the abdomen the recourse to active surgical interference, which was the rule thirty years ago, has as the result of clear experimental evidence given place to a much more expectant and conservative régime. In cases of pelvic inflammation, in walled-off appendicular inflammation of some days' duration, in acute cholecystitis, and even in acute pancreatitis, we tend to be conservative until we see the clear indication for active surgery.

Surgery of Disordered Physiology

Perhaps the most striking development in twentieth century surgery is the extension of the field from the treatment of trauma, deformity, tumour growth and infection, to that of disordered physiological action.

First in importance and frequency is the resection of the thyroid gland for various forms of toxic goitre. To Kocher of Berne we owe the pioneer work in thyroid surgery. He reported the condition of cachexia strumipriva which followed total extirpation of the thyroid gland, and together with Reverdin, with Schiff, and with Horsley in this country, carried out those experiments that may be said to form the real starting-point of our knowledge of the ductless glands. The story of the first very hæmorrhagic and dangerous operations for exophthalmic goitre, which had resisted all forms of medical treatment; the frequent post-operative deaths in a crisis of thyrotoxicosis, complicated by blood loss; the evolution of pre-operative measures and operative technique by Crile and Charles Mayo; and finally the demonstration of the immense value of iodine as a pre-operative medicament by Plummer, the earlier operation and the vanishing mortality, these facts form a romance in surgery. Indeed so great has been the success of subtotal thyroidectomy for toxic goitre—this colossal surgical experiment on the human being—that it has, I think, probably retarded the investigation of the essential nature of this disease. The fame of the operation will be fleeting and will seem strange indeed to our successors. That some means of controlling thyroid activity, short of the heavy-handed method of surgical resection, will be found cannot be doubted; I trust it may be found in some surgical research department.

The removal of the thyroid gland in cases of cardiac disease with decompensation or angina is another example of using physiological knowledge to mitigate the effects of disease. The thyroid being regarded as the metabolic pacemaker, and cardiac decompensation and angina both being regarded as evidences that the heart function is on a lower plane than that of the body as a whole, Blumgart argued that by removing the thyroid gland and so lowering metabolism the body would be brought down to the level of the heart. The results following this operation, particularly in cases of angina, are such as to warrant a continued trial.

A. von Eiselsberg, who for so long held the chair of surgery in Vienna, was an outstanding example of that band of famous surgeons who have graduated in the experimental field. His early work on tetany and the parathyroids, and on the pituitary gland, not only marked him out as a keen observer and a highly skilled technician but formed the basis for a new avenue of advance in surgery.

The successful removal of simple parathyroid tumours in cases of generalised osteitis fibrosa cystica, of tumours of the islets of Langerhans in cases of recurring attacks of hypoglycæmia, and of adrenal tumours in Cushing's syndrome, are all examples of a subtler type of surgery based on a knowledge of the fundamental sciences.

The surgery of the sympathetic nervous system, starting with the work of Leriche on peripheral vascular disorders, extended to the relief of angina pectoris, of incoördinated action in the colon in Hirschsprung's disease and, later, to achalasia of the œsophagus; this branch of surgical enterprise is still in its experimental stage, and the rigid standards of the experimental laboratory are necessary in assessing its results.

It is becoming increasingly evident that certain lesions that up till now have been regarded as requiring operative surgery will some time, and possibly quite soon, come within the sphere of hormone therapy. Undescended testicle in the young boy has been shown to descend after repeated administration of gonadotropic hormone. Some encouraging results have already been obtained in cases of senile enlargement of the prostate by the injection of testosterone or male hormone. Irregular involution or cystic disease of the breast has yielded to treatment with follicular hormone. It is obvious that in future our treatment of many disorders will be more subtle and less radical, but in this wide and fascinating field of hormone therapy it is obvious that the need for the most careful scientific work and for the records of the trained observer is very great. There is a real danger of practice leaving proof behind and

the practitioner of medicine using hormone therapy without real knowledge or due discrimination.

Cellular Surgery

To Halsted, perhaps more than to any other man, do we owe the advances in surgery of the last three decades. Halsted had a long apprenticeship in the experimental laboratory where he did fundamental work. His researches on the healing of wounds proved to him the importance of accurate apposition of wound surfaces, leaving no dead space, and the equal importance of leaving a minimum of bruised or dead tissue in the wound, no mass ligatures, no forcible retraction, no ragged edges. He showed that the body will combat successfully a certain amount of infection in a wound if these rules be observed. Kocher was working on the same lines and was, in Europe, training a band of surgeons to respect the living cell and the fragile tissues just as Halsted was founding in America a school of meticulous and delicate surgery which has made his pupils the foremost surgeons of their day.

Macewen, Horsley, and Kocher did pioneer work in cerebro-spinal surgery, but it was the remarkable advances, based on Halsted's technique, made by Cushing and his pupils that opened one of the great chapters in surgical history. The demonstration that if blood and fluid loss be minimised, and what does occur be replaced, an operation within the skull may be carried on for even eight or nine hours without dangerous deterioration in the patient's general condition, has enlarged the field of cerebro-spinal surgery to a degree undreamed of thirty years ago. The very greatest credit is due to Cushing and to all his pupils for combining the most searching preliminary investigations with delicate, yet enterprising, operative methods. There is no field where greater promise still remains for furthering knowledge of function, no less than of extending the bounds of radical surgery, than in the cerebro-spinal system, and no band of men with the experimental outlook more fully developed than the group of highly skilled surgeons who have devoted their lives to this difficult and exacting specialty.

In this country the movement in surgical thought and practice, initiated by Halsted, reached its zenith in Moynihan, whose respect for living tissues was evinced at every turn and who brought not only gentleness but art to bear on every branch of operative surgery. Just as Virchow was the founder of cellular pathology so these men were the founders of cellular surgery. The surgeon who shrinks from damaging one cell more than is necessary is not only going to have smooth and kindly healing in the wounds he must needs inflict, but is to save his patients some degree of the toxæmia that inevitably results from the autolysis of damaged cells.

When we think of cells let us not visualise the fixed and stained structures of the histological laboratory. Reagents confer on colloidal matter an appearance which differs in most cases in kind and in some cases in degree from the initial structure. Let us think rather of the living cell as we have seen it in the tissue culture medium, a mobile mass, charged with a restless energy, as a "mixture of colloidal slimes of varying degrees of fluidity," as a body like the protozoön which may disrupt explosively if the surface membrane be ruptured. If we think thus of the tissues we handle we will instinctively acquire that reverence for those cellular structures—essential parts of that infinitely complex mechanism, the human body—which will, in Moynihan's words, make every operation a veritable sacrament.

Surgery in Infections

In no branch of surgery have the lessons of the laboratory and the experimental outlook been so salutary as in that of acute infective lesions. The study of the inflammatory process, and the reaction of the body to infection as seen in lowly forms of life and in the laboratory animal, led to an ever-increasing respect for the capacity of the host to deal unaided with infection. Metchnikoff's "Comparative Pathology of Inflammation" is a surgical primer. Occasionally a very virulent infection will paralyse defence and sweep all barriers aside. If trauma be added to infection a handicap is surely added to the work of the defence. When infection is established the rational policy of treatment is defensive and conservative, local offensive measures to eradicate infection usually being ineffective for this object and mischievous by breaking clumsily through Nature's barriers.

The lessons in immunity, in which the enterprising science of bacteriology has been so fruitful, all point to a supporting and conservative line of treatment as the most helpful during the early acute phases of local infections. The passive hyperæmic treatment of August Bier, based on an exemplary piece of clinical research, has stood the test of time and is one of the simplest and most valuable methods we possess of treating virulent acute infections. The damming back the tide of infection until the immunity reaction is under way, the aid to the local defensive mechanism and the relief of pain, which properly applied passive hyperæmia procures, will ensure for it a lasting place among therapeutic agents.

The return to the conservative line of treatment for diffuse peritonitis—starvation, morphia, local heat, fluid by intravenous drip, and an empty stomach by an in-dwelling duodenal tube—has lowered the mortality and confirmed the findings of the laboratory.

The occlusive method of treating acute infective lesions—e.g., boils, carbuncles, and even osteomyelitis—has been vindicated by results, and forms an interesting chapter in surgical history—the conversion of the surgeon from the mechanical to the biological point of view.

The valuable work leading to the improvement of antitoxic sera has placed in our hands a telling weapon of defence if used in sufficient dosage at an early stage, before toxic degenerative changes in vital organs have occurred. The discovery of a drug, Prontosil, which will destroy micro-organisms in vivo without poisoning the tissues, is a very significant observation fulfilling in some measure the long-sought ideal of a therapia sterilizans magna. These advances all tend to show that the biologically minded surgeon who has reaped the lessons of immunity and has graduated in the fundamental sciences has still many bloodless but no less glorious victories to win.

Need for Trained Observers

Surgery offers opportunities, which are denied to medicine, of seeing pathology in the making and in its living form. Too often at operation the surgeon is more concerned with what he can do than with what he can see. We see but what we look for, and only the dissatisfied spirit and the strictly truthful, unbiased, and yet observant mind can see the new and appreciate the significance of what is seen. To train surgeons whose chief interest is the science rather than the handicraft of surgery is the

leading need of to-day. That a part of this training is best acquired in the experimental laboratory is to my mind beyond doubt. The planning of experiments, the elimination of all the complicating factors which almost inevitably arise to confuse the issue, the need for meticulous care, for accurate records, and for adequate controls, all these factors combine to sharpen both the outlook and the critical faculty of the young surgeon. He may make no discovery nor lay bare any fresh truth but the training will at least help to prevent him from establishing false doctrines and practices based on loose or faulty observation. Is not the difficulty in establishing a new truth the fact that the field is littered and encumbered by the prejudice and practice instituted and upheld by unscientific men?

When twelve years ago we opened a department of experimental surgery in Edinburgh, it was with the object of training surgical observers no less than of directly advancing scientific truth. To only a few is given that intuition which is the indispensable cutting edge of scientific as well as of intellectual inquiry, but to many may be given that training and outlook which make reception and appreciation of scientific truth both ready and responsive. Meetings and discussions form an essential feature of a surgical research department. To present the results of a piece of work, be it from the hospital or the laboratory, before a group of scientific colleagues, demands the crystallisation of ideas, a logical sequence both in proof and in presentation, and an elimination of non-essentials, invaluable lessons in the training of a young clinical teacher. Nothing could be more in keeping with the spirit of Harvey than the friendly rivalry in investigative work of the young men in a medical school. Without this spirit in its junior men the future of a school is bare of promise and of hope.

The development in the Royal College of Surgeons of England of a centre of experimental surgical research and the Buckston Browne experimental farm at Downe, both under the able and enterprising direction of Dr. John Beattie, is the final proof that we in this country now recognise the need for the experimental outlook in surgery.

The study of clinical science, developed and fostered with such success by Sir Thomas Lewis, has so far mainly concerned itself with the problems of internal medicine. Intensive clinical study can furnish data which the laboratory cannot provide, and when furnished there is no need for translation to the human form. The same degree of concentrated study applied to the pre-operative and post-operative phenomena in surgical cases offers rich promise of significant results. If this clinical study can at the same time be linked up and correlated with laboratory experiment we would seem to have a very powerful instrument for furthering our knowledge of disease.

Specialism

It would appear that we have reached a stage in the advance of medicine at which without intensive study of one field it is difficult to contribute anything that is new to the sum of knowledge. Convincing evidence could be led to prove how concentration makes for progress—e.g., how in disease of the urinary system, in which at one time diagnosis was notoriously inaccurate and vague, specialisation and focused ingenuity have now made diagnosis in this field the most accurate in the whole domain of surgery. In regard to neurological surgery and to surgery of the chest similar evidence could be produced. It is very desirable, however, and especially in our teaching schools, that we all begin our training on the broadest lines, remembering that the height of the pyramid is governed largely by the breadth of its base.

Most of the important advances in medicine, even in recent years, have been systemic and not regional in their scope and have been contributed by workers in the wider field. The comparative sterility of effort of such numbers of our intensive clinical workers in their narrow fields is without question a lack of education and training in the fundamental sciences.

It may well be that the discoveries of medical science in the next few years will cut horizontally through many of our specialties and a reorientation of the field may be desirable. The clear-cut distinction between medicine and surgery may go and the operating physician in various specialties may find new lines for the advance of knowledge. As the need of the knife becomes less, as assuredly it will, the need for breadth of training in the surgeon will increase with equal steps. Possibly in these far-off emancipated days the disparity of remuneration for skilled advice and operative treatment will be less flagrant than it is to-day.

Present Needs of Research

For some years now there has been a tendency in some quarters to regard the greatest need of research in this country as endowment. If we could but have research institutes with handsome scholarships for younger workers science would flourish and all would be well! I believe this view to be fallacious. It is true that accommodation and salaries are necessary but they are there already. It is men and ideas that are lacking. Modern research does doubtless require some more elaborate apparatus than when simpler problems were being solved, but as Claude Bernard said: "Experimenters do not grow great by the number and complexity of the instruments they use, it is really the other way. The great experimenters made great discoveries by means of simple instruments."

What we require most of all to-day is to encourage the occasional student who has the flair for investigative work to pursue his bent and not be led off to practice. The man with ideas and the urge to test them is an asset which we never can afford to waste. He should be trained and encouraged. Men are incomparably more valuable than institutes. The man without the institute will probably somehow carry on his work, the institute without the man is a standing mockery. Even the method of experiment may be vain in the hands of the uninspired. As Bernard said: "The experimental method cannot give new and fruitful ideas to those who have none; it can only serve to guide the ideas of men who have them, to direct their ideas and to develop them so as to get the best possible results. As only what has been sown in the ground will ever grow in it, so nothing will be developed by the experimental method except the ideas submitted to it. The method itself gives birth to nothing."

The scheme of the Medical Research Council for awarding studentships and fellowships in research, the former for the training of likely men in methods of investigation, the latter for continuing in research those who have proved their worth, this scheme offers promise of catching at a comparatively early age the young men with investigative genius. If in each of our medical schools there was at least one nidus where the young man with ideas could expand and grow, we should have the essentials for advance.

Clinical Refreshment

The advances in pure science and the triumphs of the laboratory have been so striking in the past decade, the methods used have become so specialised and intricate, that the laboratory worker has tended to become a man apart, whose interests, indeed whose language and vocabulary, are little understood by the clinician. For the advance of medicine I believe that this is a real misfortune. Whilst not denying that every discovery of truth is valuable and may sooner or later contribute directly or indirectly to human welfare, I am impressed by the fact that the most beneficent researches have been stimulated by some clinical incentive and the call of human need. Every one of Pasteur's great discoveries was based on ad-hoc work, a practical need giving the urge and stimulus to continued effort. The discovery of insulin had a clinical beginning and furnishes an excellent example of the value of correlated laboratory and clinical research.

I believe that the work of many of our laboratories would be revivified and made more fruitful if their highly skilled technical workers could be refreshed by contact with the problems which confront us daily in the medical and surgical wards of all our teaching hospitals. A regular system of ward rounds at stated periods and special consultations on unusual cases, where the laboratory workers become aware of the practical problems of the clinician and the latter learn not only new facts of scientific import but the need to maintain a high and uniform standard of observation and of record, such a system although difficult to organise would, I am sure, be fruitful in result.

De Generatione

Harvey's work on the developing ovum was not perhaps on a par with his great discovery but it showed his sustained fondness for a subject which in these latter days has acquired peculiar interest and importance. The microscopic study of the early ovum and later the reconstructive method of investigation have given us much information on the nature and the order of the developmental process. But what delight to both Harvey and to Hunter would the researches in experimental embryology of the last two decades have brought! The work of Driesch, of Spemann, of Holtfreter, of Needham and Waddington has not only supplied evidence of intense academic interest but has given us a possible clue to the understanding of malignant tumour growth. Spemann showed in the case of the newt that up to a certain stage of gastrulation the fates of most of the embryonic regions are not irrevocably determined. A piece of presumptive neural tube material removed from one embryo and grafted into another will turn into external gills if it happen to be grafted into the presumptive gill region of the latter. Contrariwise a piece of presumptive skin if grafted into a suitable region of the presumptive nerve tube of a second embryo will in due course develop into brain and spinal cord. Up to this stage of gastrulation the cells of various regions are still plastic or pluripotent even to the extent of mesoderm and ectoderm being interchangeable. This early period of plasticity is followed by one of rigidity, when a graft will continue to differentiate according to its innate determination and not in accordance with the new situation in which it has artificially been placed. One region of the amphibian embryo is not plastic during the early period of development, this is the region of the dorsal lip of the blastopore. When this lip of the blastopore of the newt *Triton cristatus* was transplanted into the indifferent ectoderm of an embryo of *Triton tæniatus*, both in the early gastrula stage, it induced the formation of a new embryonic axis—i.e., two embryos were produced where normally one should have been formed. Spemann called this centre in the dorsal lip of the blastopore the "organisation-centre." It was then shown that even if the transplanted tissue was crushed and disorganised it could still organise the constituent morphological parts of a second embryo suggesting that the organiser was chemical in nature.

The substance retained its power if narcotised or even if exposed to heat. Whilst in the living state only this one area possesses organiser properties, other areas if killed, boiled, or denatured by alcohol possess inductor capacity.

This organiser hormone was then shown to be sterolic in character and was not even specific for the species of animal. It came into line with the compounds also of sterol-like structure (*a*) the sex hormones, (*b*) the cancer-producing hydrocarbons, and (*c*) vitamin D. When it was shown by Waddington and Needham that the implantation of some of the synthetic hydrocarbons used by Kennaway and Cook into the newt gastrula caused the induction of perfect neural tubes, the lack of specificity of hormones was definitely proved.

In the process of development we have now therefore the conception of a sterol-like substance being liberated at a given point in the developing system and radiating its organising power from that spot. The initiation of wound healing probably depends on a similar chemical stimulus. In fact it has been said "the plans of living systems are written in chemical molecular structure, a language with a great wealth of expression."

How far this experimental surgery of the young embryo will take us, as yet we cannot say, but it is obvious that a new and exciting chapter has opened de generatione.

Ex Corde Caritas

Harvey bequeathed to the profession a lesson of another order to that of his discovery in physiology—his injunction to his professional brethren to meet on friendly social terms, to observe that consideration for one another's interests as conduces to harmony and befits the dignity of a great profession. To Harvey we owe the inspiration of our great societies, and as their meetings play no small part in maintaining the standard and furthering the science of medicine we must ever hold his name in high esteem in our gatherings and in our colleges.

The good name of British surgery, which never stood higher than in the past three decades of its history, owes much to the policy of sharing knowledge and experience, of abandoning the parochially minded exclusiveness of individual schools, of travel, of seeing each other's methods, and of encouraging the younger men to pursue investigative work. The various travelling clubs, the Association of Surgeons, the broadened scope and outlook of the Royal Colleges, these are all in keeping with Harvey's wish for concord, mutual betterment, and friendliness. That at our meetings an ever-increasing value should be placed on accurate observation, logical deduction and, where possible, on proof by controlled experiment, that clear thinking and thus simple, terse, and clear expression should be the standards we demand, these must be our perennial tribute to the memory of one who set for all time an example of the value of experiment in medicine and of dignity, of amity, and of mutual friendliness among the members of a great profession.

THE BLOOD PRESSURE IN THE YEARS FOLLOWING RECOVERY FROM CORONARY THROMBOSIS

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In the past twenty years there have been many references to the fall in blood pressure that is a prominent feature of the period immediately following the onset of an attack of coronary thrombosis, but few to its behaviour in the months and years after survival. The subject seems worthy of detailed study, and the present investigation was primarily undertaken in an endeavour to plot from a representative group the actual course of the blood pressure in the years following the attack. At the same time a study was made of the incidence of hypertension in coronary thrombosis.

GENERAL DESCRIPTION OF CASES STUDIED

The series comprised 212 patients, all of whom had survived the attack for at least three months, and many for several years. They were collected chiefly from the records of the cardiac department of the London Hospital and from a consulting practice; a few are from the National Hospital for Diseases of the Heart. There were 192 males and 20 females, whose distribution according to age is set out in Table I. Those selected for the series

TABLE I

Distribution of 212 Patients with Coronary Thrombosis According to Sex, and Age at Time of First Attack

Age-group.	Male.	Female.	Total.	
			No.	Per cent.
Under 40 ..	1 (aged 26)	..	1	0·5
40–49 ..	36	1	37	17·4
50–59 ..	79	14	93	43·9
60–69 ..	59	4	63	29·7
70–79 ..	16	1	17	8·0
Over 80 ..	1 (aged 81)	..	1	0·5
Totals ..	192 (90·1%)	20 (9·9%)	212	100·0

were such as were found to have blood-pressure records extending over a period of at least a few months after coronary thrombosis. The average length of time elapsing between the onset of the attack and the end of the period of observation was 4·15 years. Almost half the series (102 cases) are still under observation at the time of writing, and 65 cases, almost a third, are known to have died. The remaining 45 could not be traced further after having been followed for various lengths of time; almost two-thirds of these disappeared during the first two years. The patients were drawn from all social classes and are believed to present a fair picture of the whole group of survivors.

This inquiry was a clinical one, and therefore subject to certain limitations. Chief among these was that the small number of necropsies made it necessary to rely upon clinical diagnosis. Thus there were not included any of the "silent" cases that have been found in at least two necropsy series (Oille and Rykert 1935, Saphir, Priest, Hamburger, and Katz 1935) to comprise more than a third of the total number. Besides the invariable history of pain of cardiac distribution lasting for at least an hour and accompanied by some shock the following conclusive signs were found in 174 (82 per cent.) of our patients: pericardial rub in 15; fever or leucocytosis in 55; electrocardiographic changes in the Q R S complex, S–T interval, or T wave, occurring over weeks or months, in 146; and low systolic pressure in 34. Having regard to the fact that rest in bed alone will cause a considerable drop in blood pressure (Addis, 1922), this last sign was used as corroborative evidence only when there was found a systolic reading below 100 mm. Hg, or else a reading less than two-thirds that of others taken within 6 months. The finding of incidental disease did not exclude a case from the series.

INCIDENCE OF HYPERTENSION IN PUBLISHED SERIES

Figures showing the true incidence of hypertension before coronary thrombosis are difficult to obtain. Most patients do not seek medical advice until after the attack, and it was probably during this early period that many of the blood-pressure readings were made in the reported cases assembled in Table II. As most often at that time the blood

TABLE II

Incidence of Known Hypertension in Patients with Coronary Thrombosis

Authors.	Criteria of hypertension (mm. of Hg).	Cases of coronary thrombosis.	Cases of hypertension.	Incidence of hypertension per cent.
Barnes and Ball.	S. 150 or D. 100	42	24	57
Boas and Donner.	S. 150	57	..	25*
Conner and Holt.	None given.	274	93	35
Cowan and Ritchie.	S. 150	58	28	48
Eschbach.	None given.	50	..	75
Levine.	S. 150 or D. 100	148	58	39
White and Bland.	S. 160 or D. 110	200	50	25
Present series.	S. 160 or D. 100	212	155	73

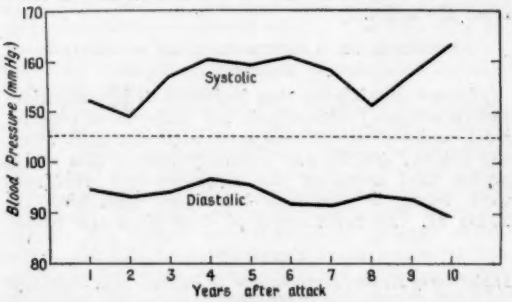
* Readings at first examination after attack.

pressure falls, and only very exceptionally rises for a brief period during the first day or two (Hochrein 1932), it follows that these figures tell only part of the story. The association of lowering of the blood pressure with advanced coronary sclerosis but without clinical evidence of thrombosis, has been frequently noted (Fahr 1935, Bell and Clawson 1928, Horine, Weiss, and Beard 1932), so that the finding of a normal pressure before the attack does not rule out an earlier hypertension. It is not the purpose of this paper to discuss whether this drop is due to an effect on the myocardium, or is part of a general state preceding arterial thrombosis; in old people it has been observed to precede arterial thrombosis in other parts of the body (Dumas 1925). Of the present series 15 had had blood-pressure readings over a period of several years before the attack, the last record being in the year immediately preceding it; although the average tendency was only slightly downwards, it is significant that in 3 (20 per cent). this last reading was normal despite previous hypertension.

The incidence of high blood pressure in cases destined to get coronary thrombosis is probably not different from that in coronary arterio-sclerosis as a whole.

Evans, Ambler, and Dodson (1933) in a review of 307 autopsies on cases of coronary disease all of which showed

recent coronary occlusion, evidence of healed infarction, or diffuse myocardial fibrosis, found almost invariably cardiac hypertrophy, chiefly of the left ventricle and presumably due to hypertension. In 136 cases that died from coronary disease, Bell and Clawson (1928) found satisfactory evidence that approximately 68 per cent. were associated with hypertension (systolic pressure of 150 mm.). Fahr (1935) discusses the findings of Bell and Clawson in 420 cases of primary hypertension: arguing from the finding that 90 per cent. of the hearts of all patients dying from hypertension show some coronary arterio-sclerosis, and that Bell and Clawson's criteria for hypertrophy (450 g. and 500 g. respectively for female and male) are unnecessarily severe, he concluded that, according to his own standards, actually 90 per cent. of their coronary sclerosis cases showed evidence of association with hypertension. Bell (1934) himself puts it at



Average course of systolic and diastolic blood pressures during the ten years after a first attack of coronary thrombosis from observations in 212 cases (see Table II).

75 per cent. Besides quoting what he found to be the incidence of hypertension based on actual readings (Table II), Levine (1929) estimated that it had been present in the majority of his cases, while Conner and Holt (1930) formed the impression that coronary thrombosis was found among persons with normal blood pressure almost as frequently as among those with hypertension. High blood pressure was found by Fahr (1935) in 80 per cent. of his cases of coronary sclerosis, and he says that in his opinion "it can conservatively be estimated that 75 per cent. of all patients with coronary disease at some time or other have had high blood pressure" (criteria 150/90 mm.).

INCIDENCE OF HYPERTENSION IN PRESENT SERIES

For the purpose of the present investigation the hypertension level was arbitrarily fixed at 160 mm. Hg systolic and/or 100 mm. diastolic. (Diastolic pressure was read at the fourth phase, namely, the point at which the loud snapping sounds become muffled.) Most clinicians will agree that this level is sufficiently high; yet many observers, particularly American, are inclined to believe that the upper limit of normal is lower than this. The evidence derived from the authors already quoted, if it were expressed in figures based on this standard (160/100 mm.) would probably indicate the incidence of hypertension in coronary thrombosis subjects as being from 60 to 70 per cent.

In the series of 212 cases here investigated the hypertensive group numbered 155, 73 per cent. of the total. The group consisted of all those that at any time during the period of observation, either prior to or subsequent to the attack, showed a reading at or higher than the levels quoted above—i.e., 160 mm. systolic or 100 mm. diastolic. There were 30 cases included though hypertension had been observed on one occasion only, but borderline readings were additionally obtained in most of them. Any error here is more than counterbalanced by the fact that the non-hypertensive group undoubtedly contained cases, which, if readings before the attack had been available, would be found then to have had raised pressure; as evidence in support of this 24 (42 per cent.) of the non-hypertensive group of 57 cases had cardiac enlargement.

The finding that 73 per cent. of the whole series gave actual hypertensive readings is considerably in excess of the reported figures quoted in Table II. This is largely due to the fact that those series included cases that died shortly after the attack, while in mine high readings were not recorded in 32 of the 155 cases until after the lapse of at least a year, and in one case not until after 14 years. That the percentage of previous hypertensives closely approximates to this figure for the whole series is supported by the finding that in the smaller group of 66 cases in which the blood pressure before the attack was actually known, it had been high in 45 (68 per cent.). Further evidence is forthcoming from a separate group of 100 unselected patients with angina of effort—presumptive evidence of coronary sclerosis—in none of whom, so far as is known, there had ever been an attack of coronary thrombosis; here the incidence of hypertension was 69 per cent.

In 192 cases records taken during the year immediately after the attack were available. Among these, 104 (54 per cent.) showed hypertensive readings during this period, and in 28 (14·6 per cent.) the systolic blood pressure reached or exceeded 200 mm. These figures understate the situation, for in 32 of the group the only available readings were made during the month immediately following the attack, when the blood pressure need not necessarily have recovered from the acute stage. The percentage of cases showing hypertension in each succeeding year increased fairly steadily until in the 10th year it was 72 per cent.

Age and Sex.—Hypertension was found in only 37 per cent. of the group under 50 years of age at the time of the attack, and in 78–84 per cent. of those in the sixth, seventh, and eighth decades. All the female patients, except one who was under 50, were hypertensives.

COURSE OF THE BLOOD PRESSURE FOLLOWING RECOVERY FROM THE ATTACK

In compiling a chart to show the course of the blood pressure for the whole series (see Figure and Table III),

TABLE III

Average Course of Blood Pressure After Coronary Thrombosis (212 Cases)

Year after attack.	Number of cases observed.	Aver. blood pressure. Syst.	Aver. blood pressure. Diast.	Year after attack.	Number of cases observed.	Aver. blood pressure. Syst.	Aver. blood pressure. Diast.
		mm. Hg.				mm. Hg.	
1st*	160	152·2	94·7	6th	25	160·9	91·9
2nd	89	149·1	93·6	7th	13	158·2	91·5
3rd	55	157·0	94·1	8th	15	151·2	93·2
4th	55	160·4	96·6	9th	9	157·2	92·5
5th	40	159·5	95·7	10th	7	163·6	88·9

* Exclusive of 1st month following attack.
Syst. = systolic. Diast. = diastolic.

an average was first taken of all the records available in an individual case at any time during each separate year following the attack. If only one reading were available for the year in question, that was used. From these figures the average during each year

was computed for 10 years; the number of observations in patients surviving longer than this is too small to give accurate conclusions. The first-year figures do not include readings taken during the month immediately following the onset of the attack. Similarly, where further attacks of coronary thrombosis occurred, all readings made within the month subsequent to such attacks were excluded; this was done so as not to distort the curve during the later years when the total number of cases was not large. Even so, the noticeable drop during the eighth year was doubtless due to the fact that almost half the cases on which was based the average for that year had recently sustained another attack. Table III also indicates the number of cases contributing to the average for each year. Unfortunately, records for more than two or three consecutive years were available in only a few cases. Although this is a defect in that the averages from year to year do not necessarily include the same cases, it is felt that there is a large enough number to compensate for this. In the whole series 96 per cent. first contributed to the chart not later than the second year, and thus the possibility was eliminated of late introduction becoming a disturbing factor.

During the ten-year period the average systolic blood pressure rose from 152·2 mm. during the first year (not including the month immediately following the attack) to 163·6 mm. during the tenth year. The steepest rise was during the first two years and probably indicates recovery from the attack. The diastolic pressure showed little change during the

TABLE IV

Course of Blood Pressure following Coronary Thrombosis in Cases where Height was Known Before the Attack

Sex.	Age at attack.	Reading before attack.	Lowest reading during 1st month after attack.	Average of blood-pressure readings during—					
				1st year.	2nd year.	3rd year.	4th year.	5th year.	6th year.
M.	54	190/—	—	195/115	195/115	—	215/130	190/110	190/120 (*a*)
M.	65	175/110	135/85	160/110 •D					
M.	67	180/—	135/80	135/85	140/90	—	—	D	
M.	64	175/75	190/100	195/105	—	—	—	—	150/75 (*b*)
M.	67	160/—	135/85	145/—	—	—	—	—	—
M.	58	170/90	—	160/110	•D				
M.	61	175/100	135/90	145/90	—	—	—	—	
M.	49	120/85	—	100/60	—	D			
M.	63	225/140	135/100	175/115 D					
F.	52	150/95	95/80	140/90	140/90	165/100	—	—	
M.	61	175/—	135/—	170/110	175/110	205/115	•D		
M.	46	185/120	120/85	190/120	175/110 •D				
M.	60	140/—	115/80	125/80	—	—	—	170/100	170/90
M.	65	190/100	120/70	—	—	—	—	—	
M.	60	185/—	130/—	170/120	190/130	D			
M.	74	155/85	—	150/90 D					
M.	74	200/—	165/100	—	180/110	135/110	140/90	170/100	170/100 (*c*)
M.	56	180/100	—	130/95					
M.	58	210/90	120/80	150/95•	180/105	—	—	—	— (*c*)
M.	55	190/105	—	180/100	—	—	—	—	D
M.	61	200/130	165/105	185/120•	—	—	—	—	190/120 (*c*)
M.	58	220/130	220/120	160/105	—	—	—	—	D
M.	52	165/95	—	—	150/90				
M.	50	215/115	170/110	—	—	—	185/125•	—	
M.	68	150/95	120/70	125/75					
M.	52	220/130	160/90	185/120					
M.	52	160/95	150/90	—	215/115•				
M.	70	210/125	130/75	130/80 D					
F.	54	260/130	130/80	190/110					
M.	62	150/—	130/80	160/100					
F.	55	250/—	—	165/105					
M.	55	135/85	125/80	—	125/80				
M.	43	130/80	—	—	140/—•	•D			
M.	57	170/—	120/—	160/105					
M.	49	110/75	140/80	135/85•	115/75	120/70	—	—	— (*d*)
M.	54	185/120	120/85	125/85	—	—	120/80		
M.	59	130/80	115/90	125/80	130/80	—	—	—	150/90 •D
M.	62	120/85	105/75	—	—	—	130/75		
M.	71	250/—	190/105	210/105 •D					
M.	51	155/95	100/60	—	—	—	—	—	— (*e*)
M.	56	135/80	—	—	•	135/80	140/100	160/90	— (*e*)
M.	67	180/—	115/80	140/85	160/95	120/70 D			
M.	56	170/—	—	110/75•					
M.	47	130/85	120/75	155/95				•	
M.	62	140/90	70/50	125/80	—				
M.	58	165/85	—	150/95	150/90	140/90	165/100		
M.	55	165/105	165/110	—	—	200/110	200/115	170/105	
F.	66	215/110	130/60	170/80					
M.	58	190/95	—	—	—	185/90	165/95		
M.	67	175/100	130/80	140/95•	145/90 D				
M.	41	140/80	115/75	130/80	120/80	120/75	130/85		
M.	77	190/110	—	175/105•					
M.	65	150/95	—	185/110	—	205/120	200/110	220/130	
M.	60	195/—	140/95	145/95	170/100	—	—	155/90	
M.	50	155/110	—	155/100	165/115	160/110	170/120	175/125	165/110
M.	70	180/110	140/90	180/100	—	—	160/90		
F.	63	200/—	150/—	215/125	—	—	170/100•		
M.	45	125/95	90/70	115/80•	120/90	D			
M.	47	115/105	145/90	160/105	—	—	—	•	— (*f*)
M.	81	125/90	110/75	115/65					
M.	63	155/—	—	120/80	120/75				
M.	59	155/95	—	125/85					
M.	64	160/—	90/50	145/85	—	—			
M.	68	145/80	100/75	125/75	125/85	140/90	140/90 D		
M.	55	135/80	—	—	180/110	175/110			
M.	45	125/80	125/80	125/80	—	125/80	125/80 ,	—	— (*g*)

• = another attack of coronary thrombosis. D = death.

(*a*) 7th year 190/115. (*b*) 7th year 160/85, 8th 160/85, 9th 165/90, 10th 155/85; died in 10th year. (*c*) Died in 7th year. (*d*) 9th year 120/80. (*e*) 10th year 190/90. (*f*) Third attack in 9th year; B.P. one month later 100/—. (*g*) 7th year 120/80, 8th 125/80; second attack in 9th year; B.P. three months later 115/75.

whole period, but in the main a tendency to drop slightly.

It has been shown that in healthy persons (Symonds 1923), and in groups of unselected patients (Gager 1930), there is a gradual but steady rise in systolic pressure with increasing age. This rise is maintained until the ninth decade (Bowes 1917, Richter 1925). In healthy adults whose average pressure is low the increase is from 1 to 5 mm. of mercury every ten years. In unselected groups containing a fair proportion of hypertensives the average pressure is of course higher, and the increase during each decade is rather more. These findings make it highly probable that the slight rise found in the average systolic pressure in the present series is little if any more than is normally expected as a result of increasing age. The slightly lower diastolic pressure at the end of the ten-year period is commonly found after middle age, and is believed to be due to the progressive loss of elasticity in the aorta and great vessels resulting from arterio-sclerosis (Wiggers 1932).

If it be accepted (see below) that the average blood pressure for the whole series before the attack is in the neighbourhood of 170/100 mm., it is obvious that *on the average* the prior level is not reached during the ten years after it. Yet it was found that in 20 of the 66 cases in which the prior height of the blood pressure was known, this level was actually reached or exceeded. There were 4 of the 20 who were non-hypertensives, and of the remaining 16 there were only 3 in which the subsequent rise was greatly in excess of the record before the attack.

EFFECT OF AGE

When the course of the blood pressure was plotted by age-groups, it was found that the levels of both the systolic and diastolic pressures of those patients in whom the onset of the attack was in the 5th decade were appreciable lower throughout than those of the whole series. The curves for the 6th, 7th, and 8th decades on the other hand followed each other closely for the first few years, after which there was a tendency for the older groups to rise more abruptly than the younger ones.

THE BLOOD PRESSURE IN CASES WITH READINGS BEFORE THE ATTACK

In Table IV may be followed the course of the blood pressure in a representative group of patients in whom the blood pressure before the attack had been recorded; subsequent records could then be compared with these previous ones. The figures in the table show the averages (to the nearest 5 mm. of mercury) of all blood-pressure records taken during each year indicated; in compiling the Figure, all records taken within a month following an attack were omitted.

There were 66 cases in the group. Hypertension before the attack was found in 45 (68 per cent.), the systolic pressure in 16 cases having been 200 mm. or higher. The average prior height of the blood pressure was 171/99 mm. A trial chart prepared from the 66 cases in the same manner as was adopted in compiling the Figure revealed that for the first four years (during which period the number of cases was large enough for purposes of comparison) the height and course of the blood pressure followed so closely that of the whole series as to suggest that the levels just quoted, namely, 171/99 mm., were actually those of the whole series before the attack. Further evidence in support of this comes from the separate group of 100 cases of angina pectoris referred to above, where the average height proved to be 170/98 mm.

The lowest levels recorded during the first month after the attack are also shown in Table IV. These were not necessarily made at the time of the greatest drop. To investigate the blood pressure during the first month was not one of the purposes of the present investigation, but observations on 144 of the whole series during this period led to the general impression that, for cases of coronary thrombosis surviving the attack, the behaviour of the blood pressure during the first month is without ultimate significance. This has also been the experience of Hochrein and Schneyer (1936).

In only 5 out of 39 cases of prior hypertension did the blood pressure fail to regain hypertensive levels within two years of the attack. In 14 cases out of the 66 in the group, the height of the systolic blood pressure was at some time following the attack known to have exceeded the prior height by more than 10 mm.; 4 of these cases, however, were never hypertensive.

SUMMARY

An analysis was made of the blood-pressure findings in 212 patients who survived an attack of coronary thrombosis by at least three months. The incidence of hypertension (160 mm. systolic and/or 100 mm. diastolic) as determined by readings made before or at any time after the attack was found to be 73 per cent. More than half the cases showed hypertension during the first year. The hypertensive group included 37 per cent. of those aged under fifty, and 78–84 per cent. of those in the next three decades of life at the time of the attack. All except one of the 20 female patients were hypertensives.

The average course of the blood pressure during ten years after coronary thrombosis (not including the first month following the attack) has been plotted. The systolic pressure showed a slight rise during this period while the diastolic showed a slight fall.

Evidence is adduced to show that the average blood pressure for the series before the attack was probably about 170/100. Although on the average the prior levels were not regained during the ten-year period, they were in a few cases actually exceeded.

I am indebted to Dr. John Parkinson, physician to the cardiac department of the London Hospital, for placing his case-notes at my disposal, and for his helpful advice in the preparation of this paper.

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ACUTE DIFFUSE NON-SUPPURATIVE ENCEPHALITIS

TWO CASES DESCRIBED

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After a long absence from active professional work a certain reluctance to venture upon ground that is becoming more and more unfamiliar will be readily understood, but as the only person fully acquainted with the details of the following remarkable case it is incumbent upon me to record it

Case 1.—A boy, aged 10, was admitted to the Leeds General Infirmary on March 7th, 1912. His parents stated that he had suffered from influenza before Christmas, and since then he had not looked well. Except for rheumatism in his hands and feet he had been quite normal till the week before admission. Then a weakness of his right hand caused difficulty in writing and awkwardness in fastening his collar. Occasionally the fingers became flexed into the palm and could only be extended forcibly. On March 7th at 11 A.M. he was playing football when a playmate struck him on the nose. He ran a few yards, then fell and became unconscious. He was seen by Dr. Rock, who made the following notes, which he sent with the patient to the infirmary: "11.30 A.M. unconscious; left eye firmly closed and pupil contracted to a pin-point; right eye wide open and pupil fully dilated; upper right eyelid in a state of continuous convulsive movement; right arm the same. Face deep maroon colour, breathing regular, 19 per minute, stertorous, pulse-rate 60, no vomiting." Some frothy mucus was twice ejected but this was attributed to some neat brandy irritating his larynx.

On admission he was still unconscious; both eyes were wide open and usually deviated to the right; pupils dilated and slightly sensitive to light. The face was congested, conjunctivæ suffused, and the left angle of the mouth was seen to twitch. Both arms were rigid and there was frequent twitching of the right arm and leg. Pulse of good volume, rate about 100; temperature subnormal. As he was being examined the breathing was noticed to become more and more irregular in rhythm, and the stertor more pronounced. In a few more minutes it was evident the Cheyne-Stokes type of respiration was developing. Both optic discs were then found to be swollen and pale and their edges blurred.

Operation.—It was quite clear that the compression was increasing, and that relief was urgently necessary, so he was at once taken to the theatre and decompression operations over the right and left motor areas were carried out. The gaps made in the cranial vault were roughly circular and 2½–3 in. in diameter. On the left side, which was first attacked, the dura bulged and there was no pulsation, but when the dura was slit crucially the soft brain bulged till it had risen quite an inch or more above the surrounding bony surface. The pia arachnoid was œdematous and the cerebro-spinal fluid that escaped was clear. On the right side the protrusion was not so pronounced, but the intracranial pressure had no doubt been partially relieved by the first decompression. From the moment of his fall to the conclusion of the operations only 4 hours elapsed.

Progress.—The next morning it was evident that the relief of tension had led to considerable improvement. Though he did not recognise either his father or his mother, he was aware of the presence of others. Questions were answered in monosyllables. The respiratory rhythm was more natural. There was a definite right facial paresis, the left angle of the mouth being drawn to one side when he spoke. He made such movements as he was asked to do. There was no rigidity, and the pulse-rate was 124. He had a number of fits on March 9th in which the right side of the face and both arms were affected and the legs rigidly extended, and on the 10th he had five more at hourly intervals. On that day the latent period, which had been very pronounced in putting out his tongue, became much shorter. Both legs could be moved fairly well and equally, but there was a very noticeable tremulousness when he raised his right arm as if the flexors and extensors of his elbow and wrist did not efficiently counterbalance one another. The right grasp was very weak. When the wounds were dressed the brain protrusion beneath the left flap was large, but that on the right was hardly perceptible. On March 13th the patient was bright and intelligent, and there had been no fits since March 10th. He was able to give his own account of his fall, and of some of his preliminary symptoms. He also described the peculiar closure of the fingers of his right hand, already mentioned. The two grasps were now nearly equal, the facial paresis could barely

FIG. 1 (Case 1).—Left, in 1912, aged 10. Right, in 1919.

be noticed when he smiled, the latent period and the leg reflexes were normal, and the swelling of the optic discs was subsiding. When the dressings were discontinued there was a rounded translucent swelling as big as half a moderate-sized orange over each decompressed area. These slowly increased and obviously contained cerebro-spinal fluid (see Fig. 1, left).

Further operations.—On May 14th, as the swellings tended to increase, an incision was made into the one on the left side. The brain still bulged through the gap in the bone, ½–1 in. above the cranial surface. It was covered by a milky-looking pia mater. The dura could not be distinguished, but the skin was lined on its deep surface by a distinct white membrane continuous at the margin of sac with the pia mater. The membrane was sufficiently thick for its edges at the incision to be sewn together before the skin was sutured. The tension of the right swelling was diminished by the operation but only after paracentesis did the tumour disappear. Both swellings however soon re-formed and slowly increased.

On June 6th an incision was made behind the left ear and the sac opened. Its posterior wall was dissected up and turned back upon itself, and the cut edge sutured to the soft tissues beneath it. A piece of gold foil was inserted into the sac and arranged to lie between the edges of the incision in the hope that it would prevent the opening from closing and allow the secreted fluid to drain into the tissues of the neck. The skin incision was then closed.

Result.—From this date there was no further trouble and he was discharged on June 18th, soon after the wound had healed. The translucent swellings gradually became smaller but before they disappeared he ceased to attend as an out-patient. They must have persisted for several months.

It was not till 1919 that he again presented himself—not because of any trouble connected with his head, but because he chanced to see me in the out-patient hall. He was then, to all appearances, a well-developed and healthy young fellow. There was no sign of brain protrusion on either side, but over the right decompression area there was a well-marked thickening due to an irregular bony plate lying over the gap in the skull. This was, no doubt,

the result of a number of bone chips which were placed under the flap before the original wound was closed. The opening was by no means covered in 1919, but he has assured me that it is much smaller in 1936 and that the plate continues to grow. It was in this year that I was able to get into communication with him. He works at a clothing factory, is married and has one child, and does not remember feeling any ill effects from his accident during all the 24 years since the operation (Fig. 1, right).

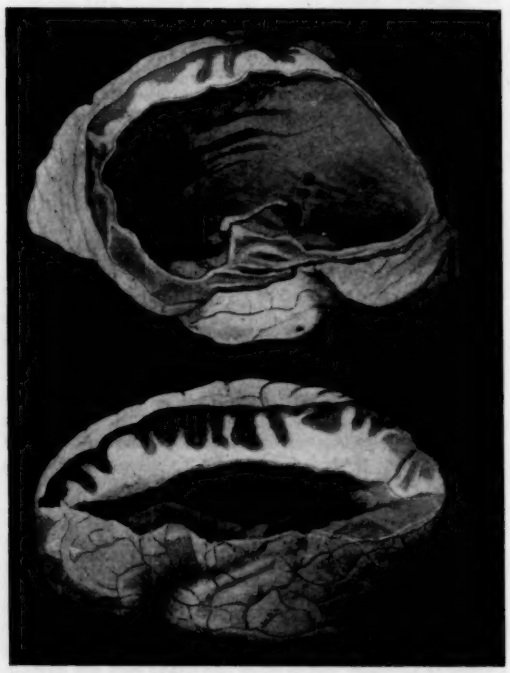


FIG. 2 (Case 2).—Above: the right cerebral hemisphere showing the lateral ventricle enormously dilated and the atrophic and fibrotic remains of the cerebral tissue. Below: the left lateral ventricle, considerably dilated. The pressure within it would be equal to that in the right ventricle. The prolonged intraventricular pressure accounts for the degenerative changes in the left hemisphere described by Prof. Jacob.

(From drawings in *Brain*, by R. C. Brown.)

Comments.—It was only after much thought that I came to the conclusion that the condition which had led to this remarkable combination of symptoms was almost certainly a diffuse non-septic encephalitis involving at least one, or the greater part of one, of the cerebral hemispheres. In making this diagnosis I was materially helped by the memory of another case which was fully recorded [1] in association with Dr. R. Cunyngham Brown. It is unnecessary, and it would be tedious, to give a full account of that case, but some of its arresting features may be recalled, for they have a curious resemblance to those present in Case 1 and an important bearing upon their causation.

CASE 2.—A boy, aged 10, the son of healthy parents, had had perfect health till 5 years before he was admitted into the Huddersfield Infirmary on Oct. 3rd, 1891, under the care of my father. His illness dated from a fall from a wall about 8 feet high, and though apparently none the worse for the fall he was put to bed as a precaution. The next morning he could not be roused and a doctor who was called in said he was suffering from "compression." He remained unconscious most of the day and then gradually recovered. In a few days he was going about as usual. A month later he had an epileptiform fit, and similar convulsive attacks occurred every other month for two years. In the latter part of this period slight loss of power was noticed on his left side.

He then had a second fall, this time from a height of only about 3 feet, and was taken up insensible. For 2 weeks he lay unconscious and during that time he slowly emaciated; then he began to gain strength but was unable to get out of bed for 8 months. Dr. F. L. Mackenzie described him as having a purely vegetative existence at this stage. For some time he lay in a state of "cerebral irritation," passing fæces and urine into the bed and becoming extremely emaciated. Pulse-rate 120; temperature 97·8° F.; respirations regular. Towards the end of this 8 months he began to improve, first moving about in bed, and taking nourishment; but spastic paralysis of the left arm and leg slowly developed. During this period the fits were in abeyance, but shortly after getting up he had one in which "he squinted and worked the left side." These attacks occurred 2 or 3 times a week and at first were controlled by treatment, but after 18 months treatment had no effect, and he would have 2 or 3 fits every day. The loss of power increased, his behaviour became eccentric, and he was difficult to control. For a fortnight before his death, which followed an exploratory operation, he was under observation in the infirmary. He had 3–4 epileptiform seizures every day, he was slow in answering questions, his enunciation was deliberate, and his behaviour abnormal, but his expression was intelligent.

Histological report on corresponding portions of the right and left frontal lobes was as follows. "Right: considerably thinned; microscopically has lost all trace of nerve structure, showing no nerve-cells but merely condensed neuroglia infiltrated with inflammatory products. Numerous inflammatory foci are present and the perivascular spaces are enlarged; pia mater shows marked inflammatory thickening. Left: the ordinary layers of the cortex can be recognised, but the nerve-cells show considerable degenerative changes and there is much dilatation of the perivascular spaces; there is no thickening of the pia mater" (Fig. 2).

DISCUSSION

The features common to both cases are the remarkable attacks of compression and the atypical character of the symptoms. The changes in the brain of Case 2 are sufficiently attested by the illustrations and by the microscopical report of Prof. E. H. Jacob of the Leeds University.

The most remarkable point, however, is the fulminating type of the signs of compression in both patients, immediately after injuries that seemed quite inadequate to account for them. Though the question of initial concussion is not of very real moment in determining the conditions causing the compression, still the facts connected with its possibility may be considered.

There is no record of any external injury in either patient and certainly none was present in Case 1. In that case, too, the diagnosis of compression was made within 30 min. of the fall, so the concussion factor, if present at all, was speedily succeeded by signs of pressure. But more impressive still was the triviality of the blow on the nose, and the way in which the lad fell on the ground. This was quite inadequate to explain the rapid onset of such grave symptoms as to threaten death within 3 hours. In Case 2 concussion, after the first fall, can be ruled out altogether or allowed to be only very slight, and yet the accident here was such that a severe injury might have occurred. On the other hand, after his second fall it was quite possible that concussion might have deepened into compression, though as far as could be judged the injury was trivial, and quite

[1] *Brain*, 1893, p. 213.

inadequate to produce the severe cerebral mischief that followed.

It has already been indicated that the symptoms in these two cases are atypical. Those who are familiar with the grave results of head injuries met with in hospital wards will recognise that, in spite of some superficial resemblance, the clinical picture presented by both is very different from that of extradural hæmorrhage. Moreover, the compression that follows on concussion resulting from brain laceration in a case of severe head injury or fractured base can rarely be in doubt, while the history and the signs of external injury cannot be overlooked. Again the practitioner could hardly confuse the common forms of cerebral hæmorrhage with either case; whilst the clinical course of intracranial tumours comes into quite a different category.

Yet the two cases have an impressive likeness to one another. After a period of 36 years, during which I had come into close contact with innumerable cases of grave head injury, the memory of the details of the earlier case remained clearly cut in my memory, so clearly that at once I was able to recognise how closely Case 1 resembled it. The clinical course of illness in Case 2 was undoubtedly the expression of a diffuse inflammation of the whole right hemisphere, and of the deformation of both resulting from the inflammatory softening, and from the increased pressure of the cerebro-spinal fluid and the added inflammatory exudation above the iter. It was not open to question that the encephalitis was acute, and not of septic origin, and it was because of the certainty of the diagnosis in Case 2 that I ventured to make a similar diagnosis in Case 1.

But the cause of the encephalitis is problematical. In Case 1 there is a definite possibility of infection, for there is the story of the influenza followed by a series of prodromal symptoms till the sudden flare-up of the cerebral mischief was precipitated by an apparently trivial injury. There can be no real doubt that the brain trouble arose from an infection, and I regret that, though at the time I did not suspect it, in the preoccupation of the moment I took no steps to ascertain its possibility. In Case 2 the possibility of infection was never thought of. Bacteriology was then in its infancy, and influenza had attained neither the virulence nor the fashion of modern times. Therefore, though the lad was stated to have had perfect health before his first fall, it is quite likely that his friends, when they gave his history dating back for 5 years, overlooked or did not realise that some childish ailment might have determined the gravity of the illness.

I am much indebted to Mr. P. R. Allison, surgical tutor to the Leeds General Infirmary, for his kind help.

Newton Abbot, Devon.

AN OMNIBUS SERVICE FOR A HOSPITAL.—Four doctors, a hundred nurses, and nearly a thousand patients are petitioning the London Transport Board to provide an omnibus service to Hillingdon County Hospital. At present out-patients have to walk at least a mile each way.

BIRMINGHAM AND MIDLAND EYE HOSPITAL.—A beautiful house, Burcot Grange, Blackwell, on the slopes of the Lickey Hills, has been presented to this hospital, and on March 12th it was opened by the Lord Mayor as the new annexe. It will be staffed by a matron, a sister, and five nurses. Accommodation is provided for 12 women and 20 children.

HYPOGLYCÆMIC SHOCK IN THE TREATMENT OF SCHIZOPHRENIA

INTERIM REPORT ON CASES TREATED AT ST. BERNARD'S (FORMERLY HANWELL) HOSPITAL FOR MENTAL AND NERVOUS DISEASES

BY LEONARD W. RUSSELL, M.B., Ch.B. Leeds, D.P.M.
ASSISTANT MEDICAL OFFICER AT ST. BERNARD'S HOSPITAL

AFTER the publication of Dr. Isobel Wilson's [1] admirable study of the hypoglycæmic shock treatment in schizophrenia evolved by Dr. M. Sakel of Vienna, I began to use this method at St. Bernard's Hospital. The method reported by Dr. Wilson was closely followed so only a brief account will be given here. Insulin is given intramuscularly to the fasting patient at 7.30 A.M. Dosage increases daily until the dose producing coma is reached; in theory this is repeated daily throughout treatment but to obtain the desired 2–2½ hours of coma daily, variations are needed. Ordinarily coma is terminated by giving 10 oz. of a glucose solution containing 7 oz. of glucose, by means of a nasal tube. Dangerous conditions calling for immediate termination of coma may arise; epileptiform convulsions and laryngeal spasm, both giving rise to cyanosis and collapse, are the most serious. These alarming states are rapidly remedied by injection of 1 c.cm. of adrenaline and further danger is averted by giving glucose intravenously or by nasal tube. Return of the symptoms of hypoglycæmia may occur some hours after the usual termination ("after-shock"); this is treated as above, by adrenaline and glucose.

The physical effects of large doses of insulin include shivering, pallor, nausea, sweating, salivation, myoclonus, spasms of muscles, convulsions, and coma. Here, the pulse-rate has usually risen as shock continued, bradycardia being rarely seen (agreeing with reports from Munsingen and disagreeing with those from Vienna). The blood pressure has varied inconstantly, seeming to depend on the restlessness or otherwise during coma. The blood-sugar has shown a lowest value about three hours after injection, not apparently related to the depth of coma.

Psychological effects are quietness, lethargy, sleep, and coma. In the quiet period there may be lucidity. After coma there may be a quiet, lucid period which, when recovery is proceeding, extends more and more into the conscious life of the patient. Some patients wake very noisily, with restlessness; the differing reactions resemble those of ordinary people waking after an anæsthetic. Affective response is improved early and the friendly spirit among patients undergoing treatment is remarkable. "Reactivation" of the psychosis during the lighter stages of hypoglycæmia really does seem to occur (Dr. Wilson disagrees); unexpected material from earlier stages of the psychosis is brought to light, often seeming incoherent and futile until checked with the relatives.

Cases were taken rather haphazard, with a view to testing the treatment; the old, feeble, and hopelessly demented were avoided.

CASE REPORTS

CASE 1.—Female aged 29. "Nervous breakdown" 11 years ago, delusions of persecution 5 years, mental hospital 2 years. Before treatment she was interfering, complaining, pestering; delusions of poisoning

[1] Wilson, I. G. H. (1936) Study of the Hypoglycæmic Shock Treatment in Schizophrenia. H.M. Stationery Office.

and interference at night, related with winsome smiles. Treatment commenced Oct. 26th, 1936, with 20 units of insulin. Some insight shown on third day—"I must have been mistaken about those injections (of poison into the gums at night); perhaps it was that the gums were sore." Severe spasms and tongue biting throughout treatment. On the twelfth day had an epileptiform fit 3½ hours after 100 units of insulin. Delusions soon became less apparent and her frequent complaining letters ceased. Menstruated for the first time in 6 months. Treatment was stopped on the 71st day on account of an influenza cold. She was not satisfactorily comatose below 240 units of insulin and 290 units was the highest dose.

Result.—Mental state is improved; she feels that her delusions are being "absorbed" and she can laugh at them now. Works in the ward, is more serious in manner and affect is more congruous.

CASE 2.—Female aged 31. Similar attack 7 years ago. Admitted 1½ years ago after a month of psychosis. Had improved a little before treatment but was still impulsive, verbigerant, staring vacantly and at times tearful for no good reason. Treatment began Oct. 26th, 1936, with 20 units insulin. By the 5th day she was generally rational. On the 10th day woke up and said "Everything has changed; I seem to have come round." Afterwards she showed psychosis only during hypoglycæmia. Dosage reduced from the 19th day and treatment ended on the 24th day; she showed no psychosis for the last three days. Coma dose of insulin was 80 units.

Result.—Mental state seems normal and she has been discharged over three months.

CASE 3.—Female aged 21. Admitted March 3rd, 1936, soon after onset. Before treatment was in refractory ward, resistive, impulsive, usually mute, often stuporose. Treatment started Nov. 9th, 1936. Talked reasonably after hypoglycæmia on the first day. Was soon garrulous and showed many bizarre delusions. "I used to be a dead soul; now I am alive and can breathe and laugh and feel my heart beating." On the 5th day, four hours after 80 units of insulin, had difficulty in breathing which passed off after insertion of nasal tube. She did not respond to the usual glucose feed and became cyanosed, with pulse 146 and opisthotonos. Intravenous glucose, adrenaline, and Coramine were given: she became restless, turning somersaults; after more glucose at 3.15 P.M. she settled down and gave no further anxiety. Coma dose was 80 units of insulin and a maximum of 110 units was given, treatment ending on the 39th day.

Result.—Mental state much improved and has further improved in the last months; she stayed in hospital on account of adverse home circumstances. She still has unusual religious ideas—she was brought up in a convent—but works hard, is pleasant, and was discharged "on trial" on March 1st, 1937.

CASE 4.—Female aged 23. Admitted three years ago after a year of psychosis. Before treatment was in a single room in refractory ward, impulsive, resistive, babbling loudly and incoherently. Incontinent and hand fed, showing little affect of any kind. Treatment began Nov. 12th, 1936, with 40 units of insulin. By the 7th day she was giving rational answers, amenable and feeding herself. On the 9th day, after coma following 80 units of insulin, she did not awake in spite of emergency measures; was drowsy all day and had after-shock at 11 P.M. Further adrenaline and intravenous glucose improved her general condition, but she was drowsy for the next two days, having glucose feeds by nasal tube. Treatment recommenced on the 12th day, when similar events followed a dose of 70 units. Her pulse-rate was about 120 all day and in the evening her temperature rose to 104·2° F. Gradual improvement in the next two days was followed by the appearance of a rash which looked like chicken-pox—though there was no source found for the infection and no other cases developed—on the 15th day. Six days' fastigium was followed by recovery in three weeks. She became pleasant, talked easily and rationally, was no longer incontinent, and was able to go home for Christmas. On Dec. 29th treatment was resumed (using another brand of insulin). She became worse and from the 6th to the 22nd day was as she had been before treatment. Since then she has improved and has provided no more alarming incidents. Treatment discontinued after 51 days; she then relapsed after a week and further treatment again brought improvement. Treatment is still continuing.

Result.—Mental state is improved; she can maintain a rational conversation, though a little retarded, is docile, clean in habits, shows appropriate affective response.

Comment.—This case is of interest, since she has had previous intensive treatment by Somnifaine, in three courses, the longest lasting 19 days, in April, June, and September, 1935. She showed much less improvement with this treatment, persisting in her incontinent habits. This is mentioned because there is still some question whether the improvement seen in the hypoglycæmic shock treatment is due to the extra attention given to the patients; results after insulin on the same case having been so much better (though her relapse after somnifaine had been into rather a worse state than before) and extra attention during the two methods of treatment being roughly the same, it seems that the extra attention is not wholly responsible for the improvement under insulin treatment.

CASE 5.—Female aged 41. First attack 11 years ago, admitted here three years ago. Before treatment mute, almost inaccessible, violent, smashing glass and attacking other patients; refractory ward. Treatment began Dec. 3rd, 1936, with 30 units of insulin. She talked from the start and rationally after a week, though resistive and noisy in light hypoglycæmia. Pulse of fibrillation during light hypoglycæmia, which often settled to a regular rhythm as coma deepened. After 30 days was able to go out for the day with her sister. Subsequently the psychosis showed more plainly, early delusions recurring and violence being frequent. She became emaciated and treatment was ended on the 53rd day.

Result.—She has since settled down and is putting on weight; she is accessible, gives reasonable replies, is quiet. She is retarded, says that she "does not understand"; delusions are now seldom evident in her talk.

CASE 6.—Female aged 25. Admitted July 18th, 1936, after a short mental illness. Before treatment restless, resistive, manneristic, grimacing, seldom speaking. Treatment began Dec. 29th with 30 units of insulin. On the 2nd day she had a fit with tonic and clonic phases and slight cyanosis, but no other likeness to epilepsy; this lasted for 5 mins. As this was only 50 mins. after injection and she was in good condition hypoglycæmia was not interrupted. She did not sleep at all and at 11.30 A.M. complained rationally of a severe headache; after drinking glucose was again mute. By the 7th day was talking well, showing a delusion that her husband was dead; this delusion had gone by the 9th day. She then began to have hysterical symptoms, small "fits" of shivering in which she would curl up and roll gently to the floor. Insulin was omitted for one day and the fits ceased after 10 grains of Medinal. After gradual decrease of insulin dosage, treatment was stopped on the 18th day. On the 20th day she went out with her husband and her parents; on the 23rd day she talked reasonably about her illness and, without prompting, discussed marital difficulties (dyspareunia). During the night she relapsed, though next day had still insight and was distressed to feel herself again going into psychosis. She became noisy, hallucinated, deluded, violent, obscene, and manneristic. Further treatment brought back her lucidity; 30 days after relapse was well behaved and rational. Discharged "on trial" a week later (March 1st) and is still well and happy at home: 48 days' treatment.

Result.—Full remission.

CASE 7.—Female aged 26. Admitted April 7th, 1933, certified two years before. Before treatment resistive, mute, stuporose, faulty in habits, hand fed. A blood pressure of 80/64 mm. Hg had rendered somnifaine narcosis abortive in 1935. Treatment commenced Dec. 17th, 1936, with 30 units of insulin. On the 2nd day smiled reasonably, talked for the first time in three years but would not converse. Blood pressure rose during hypoglycæmia to 100/75 mm. Hg, falling after termination; this was inconstant. On the 7th day had after-shock at 12.55 A.M., easily remedied. On the 8th day, after 110 units of insulin, she did not wake as usual and

was sleepy all day; treatment was omitted for two days and glucose feeds given. After 16 days of treatment she was in poor general health and treatment was discontinued. A week later she developed a mild form of erysipelas; her mental state was unchanged but recently she has shown more interest and now maintains a conversation, attends occupational therapy classes, is pleasant. There is almost full remission but this may be due to the intercurrent erysipelas.

CASE 8.—Female aged 27. Admitted April 26th, 1934, after six months' psychosis. Before treatment, fatuous, overactive, mischievous, manneristic, interfering, destructive. Treatment commenced Dec. 30th, 1936. On the 5th day she was giving sensible replies, quieter. She improved steadily until the 19th day, when treatment was stopped for a week on account of bronchitis; at the end of this week she was as fatuous as before. After further treatment since Feb. 2nd, 1937, she shows a little improvement. Affect is congruous, she sits quietly instead of wandering about, is more accessible, and helps in the ward. Lately, during light hypoglycæmia, she has shown a noisy phase of her psychosis. She had 60 days of treatment.

SUMMARY

A report is given of 8 schizophrenics, 5 having a longer psychosis than 1½ years, treated by hypoglycæmic shock. All showed some improvement, 2 with full remission, 3 being much improved, and 3 a little improved. There were 416 periods of hypoglycæmia in all, with only three seriously alarming incidents and 2 cases of "after-shock"; there were no lasting untoward physical results. In general, the findings of the continental investigators (as reported by Dr. Wilson) are confirmed, the results being less impressive, probably on account of the more chronic cases treated.

I am indebted to Dr. J. B. S. Lewis, medical superintendent of Hanwell Mental Hospital, for permission to publish this report and for his advice in determining the diagnosis of cases for treatment.

SCIATIC SCOLIOSIS

BY E. N. WARDLE, M.Ch. Orth. Liverp., F.R.C.S. Eng.

ORTHOPÆDIC SURGEON TO THE BIRKENHEAD AND THE BOOTLE GENERAL HOSPITALS

SCIATIC scoliosis is a well-known clinical entity which has not yet been placed on a satisfactory pathological basis. We are all familiar with the gross variety of the syndrome, the patient with pain down one leg, his whole trunk deviated to one side and the bent knee, but in the course of these observations attention will be drawn to another class of case which at present is, I think, often labelled sciatica and left at that. Even granted that sciatica is generally recognised now as a symptom and not as a pathological condition in itself, the word is still too loosely applied. In fact, while collecting and observing this series of cases, two things have impressed themselves. First, the dramatic relief of pain obtained in some instances merely by placing the patient in the position of head suspension; secondly, that the differential diagnosis of so-called sciatica is a most important one, and that more care is necessary in defining the condition referred to when the term is used.

CLINICAL FINDINGS

A series of 26 cases is presented, and, as the Table shows, they have been divided into two broad types, those with sciatic pain and an obvious scoliosis, and those with sciatic pain in whom a slight degree of lateral deviation of the spine became apparent during examination. The series was divided as follows:—

Total cases	26	Aged 25 or over	22
Male	16	Contralateral in Type I (per cent.)	62
Female	10	Contralateral in Type II (per cent.)	60

Type I cases.—It will be seen that 16 cases fall into the first class, and I think this is the variety of case which has most often been described hitherto. These patients always stand with the knee of the painful leg bent and the spinal deformity is obvious, but it is a "list" rather than a true scoliosis. Of this group 10 had a contralateral deformity, that is to say, the list of the spine was to the opposite side compared with the pain in the leg; and 6 had deformity and pain on the same side.

The sciatic pain itself is of great interest because some patients have pain only, a sciatic neuralgia, whereas many of them have a true sciatic neuritis which has been shown in this series

TYPE I CASES, WITH OBVIOUS DEFORMITY

Case.	Age and sex.	Site of first pain noticed.	Onset of sciatic pain.	Deformity.
1	M. 36	Back.	Rt., few wks. later.	Homolateral.
2	M. 30	Rt. leg.	—	Contralateral.
3	M. 26	"	—	"
4	F. 15	Lt. leg.	—	"
5	M. 50	Back.	Rt., few wks. later.	"
6	F. 30	"	Lt., 2 wks. later.	Homolateral.
7	M. 22	Rt. leg.	—	Contralateral.
8	M. 52	"	—	Homolateral.
9	M. 32	Back.	Lt., 6 wks. later.	Contralateral.
10	M. 37	"	Lt., 9 mths. later.	"
11	M. 38	Buttocks.	Rt., mths. later.	Homolateral.
12	M. 29	Back.	Lt., 2 yrs. later.	"
13	M. 39	Rt. buttock.	—	"
14	M. 47	Back.	Lt., 1 yr. later.	Contralateral.
15	F. 22	"	Lt., wks. later.	"
16	F. 22	"	Rt., mths. later.	"

TYPE II CASES, WITHOUT OBVIOUS DEFORMITY

1	F. 37	Rt. leg.	—	Contralateral.
2	M. 32	Back.	Rt., 1½ yrs. later.	Homolateral.
3	M. 40	"	Rt., 10 wks. later.	Contralateral.
4	F. 36	Lt. leg.	—	Homolateral.
5	F. 25	Back.	Rt., 1 yr. later.	Contralateral.
6	F. 23	"	Lt., few wks. later.	Homolateral.
7	F. 41	"	Lt., some mths. later.	Contralateral.
8	M. 37	"	Lt., 1½ yrs. later.	"
9	M. 55	"	Rt., 3 yrs. later.	"
10	F. 26	"	Lt. and rt., mths. later.	Homolateral at present.

by disturbed knee- and ankle-jerks, in combination with one or more of the following signs, stated in their order of relative frequency: tenderness over the course of the nerve; paræsthesiæ in the leg and foot; and wasting of muscles. Pitkin and Pheasant (1936) say that objective manifestations do not occur, but their statement is not true of my cases. Another unusual point about the pain is that it is referred to the course of the nerve and not to the area of distribution.

No patient has had complete limitation of movement of the lumbar spine. The ranges most often curtailed have been found to be forward flexion and rotation to one side, generally towards the side free from pain; sometimes unilateral limitation of side bending has been associated with limitation of rotation, and the limitation occurs in those directions which would stretch the painful sciatic nerve. It has been common to find three out of the possible six directions of movement free. This is in opposition to Putti's (1927) explanation that sciatic scoliosis is due to an arthritis of the small joints of the lumbar

column; such an arthritis should surely produce limitation of movement in all directions. Muscle spasm is noticeable as a rule, but is on one side only.

Type II cases.—Out of the 26 in the series 10 patients have been placed in a separate class on account of certain well-marked differences in their clinical aspect. First of all, sciatic pain was the outstanding feature, and they did not complain of deformity, as Type I cases do. Although not noticeably scoliotic, nevertheless they were found to have slight lateral deviation in the lower part of the lumbar spine. Radiograms showed a congenital malformation—e.g., sacralisation, spina bifida occulta, &c.—to be present. While quite satisfied that they could legitimately be included on clinical grounds, I became still more impressed by the fact that they were cured by the same treatment as the Type I cases with gross deformity. These patients do not stand with the knee of the painful leg bent, and their deformity is slight enough to escape notice. Their range of movements is limited in the same manner as the Type I cases, and their pain is more often a neuralgia than a true neuritis.

TREATMENT

Many methods of dealing with this most painful and intractable condition have been advocated. They include rest, diathermy, massage and physiotherapy generally, injection of the painful sciatic nerve with novocain, simple fixation in a plaster bed or cast, manipulation of the spine under a general anæsthetic, and the application of a plaster jacket with the patient in the position of head suspension. The last-mentioned method is the only one, in my experience, in which a relapse has not followed the apparent cure of the patient. It is notable that it produces equally good results with patients of either type.

A plaster jacket is applied with the patient in head suspension, by means of a halter which grips the patient's chin and occiput, and is attached to a block and tackle. The patient is lifted until he signals that his pain has disappeared or, alternatively, to the position where it is least. Many patients obtained immediate and dramatic relief of the pain in this position, but it has been noticeable that this does not occur in all cases; in some the pain takes two or three days to disappear. In patients with paræsthesiæ, these disappear more slowly than the pain. Even under full suspension some of the cases with very pronounced scoliosis did not straighten out completely, but they have all been able to stand with straight legs whereas previously they had been forced to stand with one knee bent. When incomplete correction occurs it is advisable to reapply a fresh plaster jacket by the same method after two or three weeks. The jacket must be complete, from the axillæ to the trochanters, and as soon as it has become hard the patient is lowered so that he is standing normally. The necessary parts are cut out to allow walking, sitting, and moving the arms. The plaster is applied over a stockinet vest with all the bony points well padded with felt.

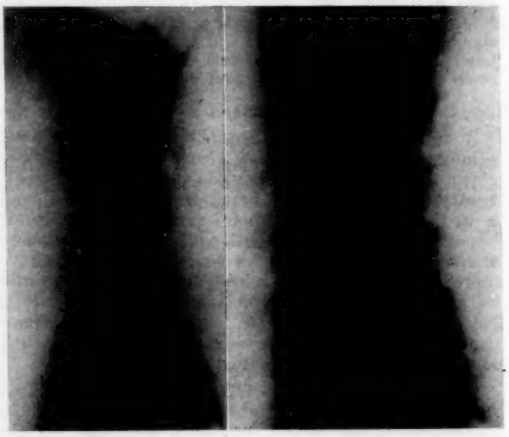
As a rule the jacket has been kept on for about eight weeks, by the end of which period all the patients in this series have pronounced themselves free from pain. The jacket is then split with the patient in head suspension again, and a cast is rapidly made from the jacket after removal. Before the patient stands again, the original plaster is reapplied and fixed with strapping, and from the cast a lighter Pexaloid jacket is made of the same dimensions as the plaster. When the pexaloid is finished and hard it is substituted for the plaster, and the patient continues to wear it for at least six months, and sometimes longer.

PROGNOSIS

All the cases considered obtained relief by this procedure—a large number of them immediately the head suspension was put into action, and the remainder within two or three days. In all but three of the cases relief has been permanent up to the present, and these three cases are interesting enough to warrant a few detailed remarks.

CASE 3 (Type I).—This patient was a very tall and heavy man: he stood over 6 ft. The deformity corrected almost completely in the first plaster, and the pain was relieved. He took the plaster off because he did not like it, and the pain came back. Another plaster was put on with the same effect, but when the pexaloid jacket was being made he left the plaster off again, and his pain came back. The case was not proceeded with.

CASE 2 (Type II).—This patient was quite a small man, but the history of his pain extended over more than two years. His pain diminished very slowly. Although he is going about his ordinary work now he states that his back aches occasionally.



Left: normal lumbosacral joint disc. Right: a narrow disc.

CASE 5 (Type II).—This lady, after obtaining complete relief from a suspension jacket, had her pain recur after an interval of six months although the pexaloid jacket was worn continuously and she was very particular about carrying out all instructions. After some consideration the lumbosacral region of the spine was grafted by the usual method four years ago, the graft extending from the third lumbar spine to the second sacral. This patient reported as perfectly well in June, 1935, two years after the operation, saying that she was quite recovered and that she was going abroad.

In general, in those cases where head suspension produces dramatic relief of the pain, cure is certain, provided that fixation is continued long enough. Where a true sciatic neuritis exists paræsthesiæ, in particular, often linger after pain has gone and clear up very slowly, and a more guarded prognosis must be given. The benefit produced by treatment also depends upon the length of time for which symptoms have previously existed; where there is a long history relapse will occur easily with the slightest remission of fixation (for instance, shrinkage of the patient in the plaster jacket) during the first few weeks.

RADIOGRAPHIC APPEARANCES

Williams and Yglesias (1933) suggested narrowing of the intervertebral disc at the lumbosacral joint as a cause of sciatic pain. An examination of lateral X ray pictures of this series of cases suggested that this condition might be present in a large proportion.

It is difficult to be accurate about the lumbosacral joint, but it seemed worth while to examine the radiographs of the lumbar spine of as many apparently normal persons as possible. By the courtesy of Dr. P. H. Whitaker a hundred films, taken for all sorts of purposes, were examined, and two things were noticeable: first of all, that narrowing of this joint space was a definite entity; and secondly, that such narrowing never occurred in the first two decades of life.

The Figure indicates the appearances which are referred to as a normal and a narrow lumbosacral joint disc. It is interesting to compare the ages of the patients; there is only one patient out of the series whose age was less than 20, and the majority of the remainder were 30 or more.

PATHOLOGY

It has been indicated earlier that the clinical findings in these patients oppose the theory that sciatic scoliosis is due to an arthritis of the lumbar intervertebral joints, mainly on the grounds that a true arthritis should produce complete limitation of movement; it is unlikely that the symptoms would always be unilateral if arthritis were present; and that if such arthritic œdema were causing pain by compression of nerve-roots then it is extraordinary that the fourth and fifth lumbar roots appear to be the only ones ever affected. There is, further, the occasional case of alternating scoliosis to be accounted for (Capener 1933). No true alternating cases were met with in this series, but there was one patient whose history suggested that his deformity had changed.

Much work has been done in recent years on the constitution and functions of the intervertebral disc, and is associated with the name of Schmorll (1927); it is known that discs higher up the column atrophy, and even herniate, into vertebral bodies. Taken in conjunction with the radiographic findings it seems possible that narrowing could easily occur at the lumbosacral junction. The direction of the deformity may mean something in elucidating the cause of this condition, for there are two possible explanations of the muscle spasm and deformity. Irritation of the affected nerve-roots by pressure could produce muscle spasm reflexly on the same side of the body as the pain; and in the second place, an involuntary effort on the part of the patient to relieve pressure by opening up the neural foramen on the affected side would produce contraction of the muscles on the opposite side of the body to the pain—a contralateral deformity.

SUMMARY

1. Cases of sciatic scoliosis have been divided into two types—those with and those without obvious deformity.

2. Fixation in a head suspension plaster has produced relief of symptoms in 26 cases.

3. It is suggested that the underlying cause of this condition is abnormal shrinkage of the intervertebral disc between the fifth lumbar and the first sacral segments of the spinal column.

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THE EARLY BACTERIOLOGICAL DIAGNOSIS OF DIPHTHERIA

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IN 1934 Solé described a "rapid culture method" for use in cases of suspected diphtheria. Swabs were impregnated with serum and heated over a naked flame to produce surface coagulation of the serum. They were used for swabbing throats in the usual way and incubated for two to four hours, a smear being then made from the incubated swab. Solé claimed 80 per cent. of positive results in cases of diphtheria after two hours of incubation and a still higher percentage after four hours.

Brahdy, Brody, Gaffney, Lenarsky, and Smith (1934) confirm this, and state that they were able to give accurate reports in 95 per cent. of clinical cases of diphtheria within four hours using this treated swab, as compared with only 83 per cent. accuracy in eighteen hours by the usual Löffler slope method, and later (1935) they say that the technique is simple, and the method quicker and more accurate than that using Löffler's serum medium. Parish (1935) in a letter and later (1936) confirms this, and states that the speed and reliability of diagnosis in diphtheria can be improved by the use of serum-treated swabs.

There is a general consensus of opinion that the direct smear is of little value in the diagnosis of diphtheria. Topley and Wilson (1936) state that as a method of confirming or refuting a clinical diagnosis of diphtheria this procedure has little to recommend it. Gray and Stone (1936) examined 1000 swabs sent to their laboratory, 202 were positive on culture, 33 were positive on direct smear, and of these 4 were negative on culture, 2 of them showing no clinical evidence of infection. They consider that these findings emphasise the need for caution in the interpretation of positive results in direct films, but conclude that primary examination of direct films is useful in aiding the clinician in doubtful cases.

We decided to compare the results given by the serum-treated swab with those given by the ordinary direct smear and by culture on Löffler's medium.

TECHNIQUE

Swabs taken by one of us from cases in Ladywell Isolation Hospital were examined independently by the other at the Salford City Laboratory on the same day. No clinical information was supplied with the swabs sent to the laboratory.

Serum-treated swabs were prepared as follows:—

Ordinary throat swabs were soaked in filtered ox serum and heated in the hot-air oven at 80° C. for fifteen minutes. This method, as recommended by Parish (1935), was found more satisfactory than heating the swabs over the naked flame. Direct smears from these and from ordinary swabs were prepared by moistening the swab with one or two drops of water and tapping it firmly on a slide. The slide was left to dry at a slight angle so that a portion of the resulting film was fairly thick, thus facilitating the search for organisms when they were not numerous. Cultures on Löffler slopes were incubated for 18 hours before examination. All smears were stained by Pugh's method, this being the stain used for routine work in the City Laboratory.

RESULTS

Throat swabs were taken from 428 cases, which were classified as typical diphtheria, clean throats, and doubtful cases (see Table).

Group A.—In 228 cases three swabs of each throat were taken, one serum-treated which was incubated for four hours at 37° C. before making a smear from it, and two plain swabs, one of which was used to make a direct smear, and the other was cultured on a Löffler slope.

Group B.—In 100 cases two swabs of each throat were taken, one serum treated (further manipulation as in the first group) and one plain swab from which a direct smear was made after inoculating a Löffler slope.

Group C.—In a third group of 100 cases three swabs were again taken from each throat, but the serum-treated swab and one plain swab were both incubated at 37° C. for four hours before making smears, and with the other plain swab a Löffler slope was inoculated.

In every case the serum-treated swab was taken first.

Results from Different Methods

—	Total No. of cases.	Positives—		
		Serum-treated swab.	Direct smear.	Löffler.
Group A—				
Typical throats	118	91	81	114
Clean ,,	91	20	11	61
Doubtful ,,	19	3	3	8
Group B—				
Typical ,,	63	48	43	63
Clean ,,	29	10	6	22
Doubtful ,,	8	0	0	2
Group C—				
Typical ,,	83	65	64	79
Clean ,,	17	3	2	15

From the Table it will be seen that, considering only swabs from typical diphtheritic lesions, the serum-treated swab was positive in 204 cases out of 264, that is, 77 per cent. The direct smear was positive in 69 per cent. (of 118 cases) when a separate plain swab was used for this purpose, and in 68 per cent. (of 63 cases) when the same swab was also used to inoculate the Löffler slope. When the plain swab also was incubated for four hours, the direct smear was then positive in 77 per cent. (of 83 cases), as high a percentage as that given by the serum-treated swab. Although the numbers are small they suggest that the improved results given by the serum-treated swab are mainly due to the incubation that it received.

Our percentage of positive results with the serum-treated swab are lower than those obtained by the American workers quoted, and by Parish (77 per cent. as against 95 per cent.). This is probably due to the atypical appearance of the diphtheria bacilli in the smears from these swabs, as many of the bacilli had lost their metachromatism and appeared as uniformly stained rods which could not with confidence be distinguished from diphtheroids. Unless some of the commoner pleomorphic forms such as barred, club shaped, irregularly staining, or granular bacilli were also present, smears were reported as negative. Due regard was also given to the arrangement of the bacilli in the smears, "Chinese letter" formation being regarded as evidence in favour of the organisms being true diphtheria bacilli.

The diphtheria bacilli on the whole were much more typical in the simple direct smear from the untreated swab, and in cases of clinical diphtheria were usually found without any laborious search. Here again smears were not considered positive unless fairly typical diphtheria bacilli were present in moderate numbers.

The results obtained by culture on Löffler's medium are superior to those given by smears from the serum-treated and ordinary swab. In 264 cases of clinical diphtheria, 97 per cent. were positive on Löffler, 77 per cent. on the serum-treated swab, and 71 per cent. by the direct smear. Our percentage of positive cultures on Löffler is higher than obtained by the workers quoted. We think this may be due to careful preparation of the medium and storage so as to avoid drying. In a previous preliminary note only 87 per cent. of 82 cases of clinical diphtheria were reported positive on culture. Since then overhauling of the preparation and storage of the medium on orthodox lines have resulted, we believe, in the better results now published.

In clean throats—previously typical cases—98 of 137 (72 per cent.) were positive on Löffler, and 33 of 137 (24 per cent.) were positive with the serum-treated swab. These results show that culture on Löffler is much more satisfactory than the serum-treated swab for the detection of carriers, or in examination of cases for discharge from hospital.

The numbers of clinically doubtful throats swabbed is small. In 2 of 27, positive results were recorded by the serum-treated swab and direct smear, where culture on Löffler was negative. Of these two cases, one patient had diphtheria previously and was Schick-negative, and antiseptics had been applied to the fauces prior to swabbing, while the other was suffering from scarlet fever with powdery deposit on the tonsils, and four subsequent cultures were negative. This suggests a high percentage of false positives in doubtful cases, which we think is misleading in view of what follows.

All throat swabs sent from cases of suspected diphtheria by practitioners to the City Laboratory during laboratory hours are examined by direct smear after a culture has been made on a Löffler slope. An analysis of the last 3000 throat swabs shows only 8 positive on direct smear which were not positive on culture. In the same series, 302 swabs were positive on culture and the cases admitted to Ladywell; direct smears gave positive results in 40 per cent. of these swabs. This is a much lower percentage of direct smear positive than that obtained in our series of cases of typical diphtheria, and can probably be explained by three factors:

(1) Special care was taken in swabbing the throats for this investigation. It is often difficult to obtain a good swab from a refractory child, but it is much easier with hospital facilities, which are not available to the general practitioner.

(2) Of the cases reported positive on Löffler and admitted to Ladywell 25 per cent. were not true clinical diphtheria.

(3) Swabs from cases in the hospital were taken on an average a day or so later in the course of the disease than those taken from cases outside. This may have resulted in a higher proportion of direct smear positives.

It is interesting to note that in this same series of swabs sent from outside to the City Laboratory, 52 per cent. of the cases admitted with clinical diphtheria were positive by direct smear as well as on Löffler, and no case positive on Löffler which was not clinically diphtheria was positive by direct smear.

CONCLUSIONS

We do not recommend the serum-treated swab as a routine method for the diagnosis of diphtheria. Apart from the difficulties of distributing freshly made swabs to the general practitioner and dealing

with them on return to the laboratory, the results given by them show only slight superiority over those given by the simple direct smear.

All swabs sent from suspected cases of diphtheria should be examined by direct smear after inoculating a Löffler slope or other suitable medium. We believe that about half of the swabs sent for examination from cases of diphtheria will be positive in direct smears made in this way.

We wish to thank Dr. Edge, medical superintendent of the Ladywell Sanatorium and Isolation Hospital, for permission to investigate the cases.

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Clinical and Laboratory Notes

CEPHALIC TETANUS

A CASE TREATED WITH INTRAMUSCULAR MAGNESIUM SULPHATE

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THIS case seems to be worthy of record, first, because cephalic tetanus is a rare form of the disease, and secondly, because much interest has recently been roused by newly devised methods of treatment for tetanus. The case is also of interest because it shows how confusing the physical signs can be during the onset of the disease, when progressive involvement of the cranial nerve nuclei is slowly occurring.

CASE REPORT

The patient was an island boy aged 17. On Oct. 5th while at work he had slipped on a rock and fallen head first down a small waterfall. He landed on the left side of his head, but did not lose consciousness. He was picked up by his fellow workers and brought to me at once.

On examination two clean cut wounds 1½ in. and ½ in. long were found on the scalp over the left pterion, and parietal eminence respectively. Probing revealed no evidence of fracture of the skull and there had been no bleeding from mouth, nose, or ears. The tympana and fundi were normal. There was no evidence of lung or other injury. The scalp surrounding the wounds was shaved, the wounds were cleaned with hot 1 in 1000 perchloride solution and 5 silk-worm gut stitches were inserted.

Next day the wounds looked clean, and he complained merely of aching in the left shoulder, due to bruising. The wounds were redressed.

On Oct. 9th the edges of the wound over the parietal eminence were puffy; stitches were removed and a small amount of pus expressed; smears showed staphylococci only. As he stated that he had bled from the right nostril on the preceding afternoon he was admitted to hospital and the wounds were dressed thrice daily with eusol. A fracture of the cribriform plate was feared and a temperature of 101·6° F. on the night of admission lent colour to this; since the condition of the wounds did not account for the degree of fever, but on examination the nervous system was normal. The boy continued to show a nocturnal rise of temperature to 100° F., and on the morning of Oct. 11th his left upper lid was drooping and he complained that he could not keep the eye open. The pupils were central and equal, reacting sluggishly to light; direct and consensual reactions were obtained. No head retraction and no neck rigidity; tendency to a positive Kernig on both sides, more on the left than on the right. No other signs in the nervous or other systems. Temperature, normal; pulse-rate 84. He was perfectly rational and complained of nothing but the inability to open the left eye. His condition did not appear to be that of incipient meningitis. Cerebro-spinal fluid clear and colourless; no increased globulin.

During the next three days the nocturnal fever abated and his condition seemed to improve slightly. The only new symptoms were attacks in which "everything went black," a transient amblyopia lasted 5–10 mins. Unfortunately I never saw him in one of them. He had in all five such attacks. His fundi were still normal.

Oct. 15th: The right upper lid drooped; the left eye could now open; left half of the face weak. On looking to the right the left eye did not cross the midline. No diplopia, and all his reflexes were normal and symmetrical, plantar response flexor.

Oct. 17th: He had a peculiar skew deviation of the eyes. The right eye, whose orbicularis palpebrarum was in spasm, was directed downwards and outwards when the lid was raised, and the left eye upwards and outwards. The left eye had a full range of movement, but the right did not cross the mid-line on deviation to the left. The fundi were normal. He now complained of stiffness in the left side of the face, which was still weak. The left masseter was rigid on palpation. The right was normal. Tetanus was diagnosed and 150,000 units of anti-tetanus serum were immediately given intravenously. Six hours after the injection the boy showed well marked opisthotonus and trismus, and his speech had become typically tetanic. He had had two generalised spasms since noon. He lay with the arms flexed at the elbows, but in neither arms nor legs was there much rigidity at this stage.

Oct. 18th: Opisthotonus more pronounced, though the trismus and speech were better. Downward deviation of the right eye disappeared. The right eye now simply deviated out from the midline. The right orbicularis was still in spasm and the left was partially paralysed. He thus lay with the right eye firmly closed, the left half open. He was not sweating perceptibly, but was much troubled by salivation so excessive that he used a handkerchief continuously, and it had to be controlled with atropine. The pulse-rate was 86, but the temperature was normal.

It was decided to try the effect of intravenous Evipan Sodium, and gr. 5 dissolved in 10 c.cm. of distilled water were slowly injected into the right basilic vein. When only 5 c.cm. of the solution had been injected he had a violent generalised spasm followed quickly by six others, during which he became cyanosed. Presumably this was because evipan exercises an almost immediate depressant influence on respiration, and this, added to the fixation of the thorax, increased the tendency to convulsion. He was still swallowing fairly well and was ordered chloral gr. 20, sodium bromide gr. 30 every two hours. Avertin not being available, treatment with intramuscular magnesium sulphate was begun the same evening; 10 c.cm. of a sterile 10 per cent. solution were injected into the right vastus externus. His rigidity gradually lessened and within 45 minutes of the injection it had become impossible to pass a hand under the back. Breathing became a little shallower and slightly irregular, but his pulse remained good. An hour later he had a generalised spasm, caused by turning a blanket back, and 1½ hours after the injection he began to have mild spasms again. Since the doses had definitely produced some relaxation and procured him 1½ hours of practically unbroken sleep, it was decided to continue the injections 4 times a day. These were given on Oct. 18th–30th and altogether he had 86·65 grammes of magnesium sulphate. Chloral and bromide were also given two-hourly, gr. 40 and gr. 60, increasing to gr. 60 and gr. 120 respectively; but from the 23rd onwards it became impossible to give the mixture two-hourly owing to the œsophageal spasm. The dose had to be reduced, and it was no longer possible to keep accurate records of the amount taken.

Oct. 19th: Condition materially unchanged; two generalised spasms during the day, but no new signs; limbs not yet affected. A pint of glucose saline given per rectum night and morning.

On Oct. 20th and 21st his condition deteriorated. His pulse-rate rose to 100 and swallowing became more

difficult. Tube feeding tended to bring on spasms, though in the intervals between feeds he remained on the whole spasm-free. His legs had become rigid in extension. His arms and hands were still unaffected. His temperature had risen to 99° F. and remained at this level until the 25th. It never rose above 99° F. throughout the illness. He had three generalised spasms on the 20th and two on the 21st.

Oct. 22nd: Rectal salines retained poorly, and he had to be given intravenous glucose saline. He could still take spoon feeds if given half an hour after one of the magnesium sulphate injections; timing them thus seemed to lessen the tendency to spasms. In the evening of the 22nd he had a single severe generalised spasm brought on by a drop of fluid entering the larynx; he became cyanosed.

On Oct. 23rd he could swallow only with great difficulty; rectal saline badly tolerated; intravenous glucose saline was continued. He stated that "he felt he could chew but it stuck in his gullet" and, in fact, his trismus was slightly less, but spasm of the œsophagus was manifesting itself. He also said that the "chest felt less tight, but the belly was getting tighter." Salivation was still troublesome and his pulse rose to 130. He had no generalised spasm to-day.

Oct. 24th: The magnesium sulphate was increased to 15 c.cm. of a 33⅓ per cent. solution since it seemed to be losing its effect. He complained of pain on micturition in the afternoon and was only able to pass his urine drop by drop; it had no albumin. He had one generalised spasm while attempting to micturate in the afternoon.

Oct. 25th: The spasm of the œsophagus had become so pronounced that attempts to swallow fluid made him very frightened of choking. He said he could bite but was afraid he would choke if he swallowed. The pulse-rate was 110, temperature 99° F. His general nutrition was suffering by this time and his condition was perceptibly weaker. No generalised spasm.

Oct. 26th: As the œsophageal spasm still persisted, an attempt was made to pass a Ryle's tube into the stomach under open ether anæsthesia which he took well, but when about 5 in. of the tube had passed, it was gripped so firmly that it was difficult to withdraw it. He had a quiet day after the anæsthetic and took spoon feeds a little better. A bromide rash appeared. No generalised spasm.

Oct. 27th: His pulse-rate was 120. He had had a better night, but was complaining of thirst. The œsophageal spasm was still marked and he was beginning to show signs of dehydration. Intravenous glucose saline was the only way of feeding him. Micturition still painful and slow, and the bowels had not opened naturally since Oct. 11th. Salivation began to diminish. Labial herpes appeared and bromide rash spread to neck. Condition now critical, but the tendency to generalised spasms was lessening, and he had none throughout the day.

Oct. 28th: He was unchanged in the morning; pulse-rate 108–120. He remained perfectly rational and could describe his subjective sensations. About 2 P.M. he suddenly said he could swallow better and he was able to take fluid feeds without any spasm.

Thereafter he began to improve; his bowels were opened naturally for the first time for 18 days; opisthotonus still present, but "the tightness only pained him in the lower part of the belly"; the recti slightly less rigid. Micturition still a little painful. The intravenous salines were discontinued and only one injection of magnesium sulphate was given on Oct. 29th and 30th, when it was discontinued. He had no spasms after the 28th and his rigidity slowly diminished. He began to take semi-solids on Nov. 3rd. Pain and stiffness in the left masseter persisted to Nov. 10th. His generalised rigidity diminished rapidly and steadily, and had completely disappeared by Nov. 15th. Ill-sustained ankle clonus could only be elicited up to the 10th. His plantar responses remained flexor throughout. His optic axes became and remained parallel. Convalescence was uneventful after the rigidity had disappeared, the only noteworthy point being that the pulse remained rapid, 84–100, to the end of November.

CONCLUSIONS

The boy's recovery must be attributed primarily to his good physique and his youth, and secondly to the short incubation period of 6 days. The diagnosis should have been made much earlier, but unfortunately tetanus was not considered in the differential diagnosis. Magnesium sulphate intramuscularly was of undoubted value in reducing the frequency of the generalised spasms and in enabling tube feeding to be carried out until œsophageal spasm made swallowing practically impossible.

Points of interest in the case are the skew deviation of the eyes, the attacks of transient amblyopia, and the absence of diplopia throughout the illness. The involvement of bladder and gut, as evidenced by the difficulty in micturition and the extreme constipation, were also noteworthy.

THE EFFECT OF MUMPS ON THE WASSERMANN REACTION

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A NON-SPECIFIC antigen is used for the Wassermann reaction as normally performed in pathological laboratories, most departments employing an alcoholic extract of human heart. As a direct consequence of this, it is not unreasonable to expect that at times positive Wassermann reactions may be obtained from the sera of individuals showing no clinical evidence of syphilis, or even suffering from some other disease.

It has been recorded that positive Wassermann reactions have resulted in cases suffering from septicæmia (streptococcal and others), small-pox, and glandular fever. Whether such patients would give a positive result if a specific antigen had been employed is a matter of conjecture. At the present time it is not easy to procure such material. In the original method of performing the Wassermann test, the antigen used was an alcoholic extract of livers obtained from infants affected with congenital syphilis.

The following case is recorded in order to show the importance of remembering that the Wassermann reaction as normally performed using a non-specific antigen may lead to the wrong diagnosis, and also that the previous history of the case should be known.

CASE-HISTORY

A male child, aged 3, was admitted to hospital on August 10th, 1936, on account of weakness and lethargy. Temperature 102° F. During the previous week the condition had become worse.

On examination the child was noted to be pale, rather weak, and very difficult to rouse. Both submaxillary glands were slightly enlarged. There was no knee rigidity, and no ocular or facial paresis was noted.

A lumbar puncture was performed from which only a few drops of fluid could be obtained, so that it was only possible to perform a cell count. This showed 2 lymphocytes per c.mm. A blood Wassermann reaction was put through, giving a moderate positive result, the Sigma reaction at the same time being 2 units. The child still remained extremely drowsy, so that five days after admission a further lumbar puncture was performed. The findings in the cerebro-spinal fluid were:—

Cells	24 lymphocytes per c.mm.
Total protein	0·06 per cent.
Globulin	Positive.
Lange curve	2 2 2 2 2 1 1 1 0 0 (mild paretic type).
Wassermann reaction	Weak positive.

These findings along with the positive Wassermann and Sigma reactions in the blood suggested that the condition

was one of syphilitic encephalitis, so that the Wassermann reactions of the parents and the other child (aged 5) of the family were performed. The elder child gave a weak positive result, with a Sigma reaction of 1 unit, but both parents showed completely negative Wassermann and Sigma tests. A further Sigma reaction was also performed on the child in hospital, this again yielded a result of 2 units.

These results indicated that the tentative diagnosis of encephalitis due to syphilis was definitely wrong. Further questioning of the parents elicited the information that, six weeks previously, both children had had mumps. The diagnosis thus became clear that the patient was suffering from encephalitis following mumps. The condition of the child during the week after admission rapidly deteriorated, pneumonia intervening, and death followed. It is probable that death was accelerated by the involvement of the laryngeal muscles and diaphragm, as a late result of the mumps infection. No post-mortem was performed, as permission was refused.

A further Wassermann test performed on the surviving child four months later gave a completely negative result.

The above case shows that it is important to know the clinical histories before reporting Wassermann tests. In this instance the laboratory findings were such that a diagnosis of syphilitic encephalitis was suggested on fairly substantial grounds.

If the result of the Wassermann test differs from that anticipated on clinical grounds, the reaction should always be repeated, and no pathologist will object to this procedure since the test itself uses a non-specific antigen. This suggestion applies to all tests for syphilis, since a non-specific antigen is almost invariably used. In the above case positive Wassermann and Sigma tests were given by the sera of both children who had been infected with mumps.

I am indebted to Dr. E. C. Warner for the clinical notes of this case.

MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE

SECTION OF NEUROLOGY

A MEETING of this section was held on March 18th, Dr. ANTONY FEILING presiding, when Dr. MACDONALD CRITCHLEY opened a discussion on the

Neurological Sequelæ of Spinal Anæsthesia

The problem, he said, deserved ventilation by neurologists. Data were inexact, provided mostly by those without specialised knowledge of neurology. Figures of the frequency of untoward sequelæ were contradictory, some having written of thousands of successful uncomplicated cases, while Blatt had collected 100 cases of sixth nerve palsy alone. A significant number of sequelæ were certainly overlooked. Their clinical diversity, from cranial nerve palsies to polyneuritis, with our meagre knowledge of the pathology of these conditions, made classification unsatisfactory, and for the moment Dr. Critchley preferred to describe the syndromes in their order of frequency.

Headache occurred more frequently after a spinal anæsthetic than after simple lumbar puncture, was liable to be more severe and prolonged, and was occasionally complicated by meningism or cranial nerve palsy. Aseptic meningitis had been described. *Paralysis of the sixth nerve*, usually unilateral, was the commonest lesion reported in the literature. His own two cases, both bilateral, developed some days after the spinal anæsthetic in association with severe headache. Some of Fawcett's cases showed headache, photophobia, dizziness, hallucinations, and tetanic contractions. Recovery was usually complete. There was no evidence as to pathogenesis. The cerebro-spinal fluid pressure in these cases was not even known. Dr. Critchley described other less common cranial nerve lesions. *Lesions of the cauda equina and conus medullaris*, the commonest in his personal experience, could easily be overlooked, when represented by urinary retention and sacral analgesia. A typical case was that of a man of 40 who, after an amputation under Planocaine anæsthesia, developed retention of urine and foot-drop with loss of knee- and ankle-jerks, and an extensor plantar response in the remaining limb. Sensation was impaired over the outer side of the leg and calf. Flexion and extension at the ankle-joint were almost impossible. The knee-jerk returned later, but the other signs and the difficulty with micturition and defæcation were still present after ten months. Dr. Critchley's eight cases presented strong though incomplete evidence of a lesion in the terminal portion of the spinal cord and roots. Two showed clinical improvement in a few weeks; in four, symptoms persisted until death. The onset immediately after the spinal anæsthetic with no subsequent progress suggested an acute toxi-infective process, a direct effect on the cord and roots of the anæsthetising substance. He had records of two cases of *radiculo-myelitis* with evidence of a more widespread process affecting the cord and roots at a higher level. Myelitis, transverse, diffuse, or ascending, had been reported. Anæsthetic areas of the body could be the site of trophic lesions, including bed-sores. A case in which gangrene occurred without evidence of permanent neurological damage, but with marked cardiovascular disease, suggested that spinal anæsthesia had been followed by thrombosis in the vessels. A case of *sacral radiculitis* had been characterised by severe spasms of pain and sacral hyperæsthesia of long duration. *Focal cerebral lesions* had also been recorded, the mental symptoms and transient hemiplegia resulting from angiospasm or a small thrombosis. Lastly came the group of cases where *symptoms of neurological disease*, such as disseminated sclerosis, progressive muscular atrophy, and neuro-syphilis, dated from a spinal anæsthetic.

In conclusion Dr. Critchley referred to the clear experimental evidence of the toxicity of cocaine derivatives injected intrathecally on the nerve tissues, quoting, among others, Loyal Davis and his co-workers. It was foolish to ignore the evidence that spinal anæsthesia could be followed by neurological sequelæ, sometimes fatal. Ignorance of causation made their prevention at present impossible. He wondered if some were due to faulty technique either in lumbar puncture or dosage, or pre- or post-anæsthetic medication or nursing. How far the drop in blood pressure was a factor, and what part was played by the anæsthetic substance had yet to be determined; and finally it was necessary to consider whether some or all of the sequelæ might be due to the activation of latent morbid process within the nervous system by the spinal puncture or the anæsthetic.

Dr. J. K. HASLER said that the giving of a spinal anæsthetic included a lumbar puncture and the introduction of a drug into the spinal canal. Possible sequelæ could be referred to either of these actions. In the first group headache could be attributed to

the puncture, especially to leakage of cerebro-spinal fluid through the puncture hole. The use of as fine a needle as possible prevented neither leakage nor headache. He advised inserting the needle in the midline by steady pressure, with the bevel in the long axis of the body, and the patient in the Trendelenburg position. Imperfect technique produced gross damage to the nervous tissue, and he had seen two such cases after too high a puncture. The needle should never be inserted above the third lumbar vertebra. Failure to get into the proper space was due to inexperience. When bleeding from injured vessels occurred, he wondered if sequelæ could be due to a hæmatoma or to the later development of adhesions. The effect of the drug should wear off immediately after operation. The commonest trouble was interference with the emptying of the bladder, common after rectal operations with any anæsthetic. He thought that the anæsthetic drug itself produced the symptoms, some of which, for example the headache and rigors following Percaine, might be due to faulty preparation of the anæsthetic solution. Two of the commonly used solutions contained alcohol, which added an unnecessary risk. The concentration of the drug was extremely important, dilute solutions producing temporary, and concentrated ones permanent, paralyses. He preferred larger quantities of lower concentration, and suggested for greater safety the mixing of the anæsthetic solution with an equal quantity of cerebro-spinal fluid before injection.

SPINAL ANÆSTHETICS IN EXPERIMENTAL WORK

Prof. A. D. MACDONALD spoke as an experimentalist. He would be the last to apply conclusions from dogs and cats directly to man, but the difficult problem of why spinal anæsthetics sometimes caused death on the table or were followed by bladder or rectal symptoms called for all possible help. In the cat spinal anæsthesia could be easily produced. His first endeavour had been to determine with his co-workers the fate of the drug used. They had investigated numbers of the procaine series (Larocaine, Tutocaine, Planocaine) which coupled with guaiacol disulphonic acid give a brilliant colour suitable for colorimetric study. They had proved that they were estimating the anæsthetic itself, and not a degradation product. In cats 0·5 c.cm. of a 10 per cent. solution of procaine, corresponding to a dose of 20–30 c.cm. in man, could be safely injected. The effect lasted 30–50 minutes, knee-jerks returning with a concentration in the lumbar fluid of 0·05 per cent. Ten minutes after injection the concentration in the lumbar fluid was 2–3 per cent., and in the cisterna magna 0·002 per cent., showing amazingly little spread headwards. The concentration in the blood was low; the full spinal dose had been administered slowly intravenously in man without ill effect. The acute effects of lumbar injection in the cat were increased movement of the diaphragm owing to the paralysis of the intercostal muscles, and fall in blood pressure from 130 to 80 mm. Hg. Injection at the third cervical level produced diaphragmatic paralysis with increased thoracic movement, and into the cisterna magna intercostal and diaphragmatic paralysis. Blood pressure first rose, falling with failure of the respiratory centre. Artificial respiration prevented death.

Sequelæ after 0·5 c.cm. of a 10 per cent. solution were recognised in the experimental animal by tail droop, bladder and rectal symptoms, and weakness of the limbs. No other constituent of the injected solution except the actual anæsthetic (Duracaine, Planocaine, Stovaine) produced sequelæ in cats. The severity of the symptoms varied directly with the concentration of the drug. Using 2½, 5, 10, and 20 per cent. solutions, the incidence of paralysis was respectively 0, 10, 43, and 80 per cent. Two well-established ideas should be considered in any explanation of these sequelæ. Sherrington had said that a change in any part of the spinal cord was more likely to occur at the synapse than in the fibres, and Gasser had shown that the finest fibres were those most easily and permanently affected by local anæsthetics.

SOME SUGGESTIONS

Dr. FERGUS R. FERGUSON said that post-operative difficulties with micturition or defæcation were too often disregarded. In Manchester many sequelæ had been seen, and he had records of thirteen cases with the neurological picture of a cauda equina lesion seen between August, 1933, and March, 1935, after heavy duracaine anæsthesia. Eleven were men and two women, and the age varied from 17 to 70 years. The eight severe cases in the series followed emergency operations. There was much variation in severity, the clinical features being absence of one or more leg tendon reflexes, retention of urine, incontinence of fæces, sensory loss over the third, fourth, and fifth sacral areas, and loss of sexual function. It seemed that the roots nearest the injection were in the greatest danger. Sequelæ, especially retention of urine and fæcal incontinence, though seemingly trivial at the time, could be devastating and lasting. As to ætiological factors, he thought that concentration of the anæsthetic and duration of the contact were most important. In the series recorded the site of the lesion was the cauda equina, though other syndromes were reported. Trauma alone could not cause sequelæ, though it might play a part. It seemed impossible for hæmorrhage to produce such widespread lesions, and there was no evidence of bleeding. It was strange that after tens of thousands of diagnostic lumbar punctures there had been no sphincter nor reflex complications, and they did occur after a perfect anæsthetic puncture. The variation in the severity of the symptoms seemed incompatible with trauma. Post-mortem and experimental evidence suggested a toxic effect. No local cause could explain the frequent sixth nerve palsy. Other constituents of the injected fluid had come under suspicion, especially alcohol, but 3 c.cm. of 90 per cent. alcohol could be injected without sequelæ. Since heavy duracaine had been introduced for its slow diffusion, the undiluted procaine might be held too long in contact with the nerves. He concluded that duracaine was dangerous, and should not be used, and that for safety the procaine solution should be diluted with an equal quantity of cerebro-spinal fluid, and given slowly.

DISCUSSION

Dr. RUSSELL BRAIN, opening the discussion, reported a case of myelomalacia in a man of 63 following Spinocaine, beginning with pain in the lumbar region one week after operation. Pain in the left knee followed, with difficulty in walking, and numbness first in the left leg, then spreading to the waist. Later there was retention of urine and finally death from intercurrent infection. The time intervals in the progress of the case suggested a possible sensitivity to foreign protein.

Dr. DOROTHY RUSSELL gave an account of the changes in the central nervous system in this case. The main lesion was a softening of the spinal cord

between the twelfth thoracic and second lumbar levels, with necrosis of the whole substance of the cord, complete in the grey, partial in the white, matter. Microscopic study showed thrombosis and necrosis of the walls of the pial arteries. She considered that the primary effect was on the vessels with secondary necrosis of the grey matter. There was no evidence of direct trauma, nor of old hæmorrhage, nor was there anything to suggest infection introduced by the needle.

Dr. H. K. ASHWORTH said that the sequelæ could be divided into those dangerous to the patient and those that were transient. Of the first he mentioned the cauda equina lesion described by Dr. Ferguson, and the precipitation into activity of incipient disease of the nervous system. He blamed the concentration of the anæsthetic and its combination with other injected substances at the site of the injection. The chief transient sequela was a sixth nerve palsy, of which he had seen two examples in a total of some thousand percaine anæsthetics. Though one had lasted for four months, both had cleared entirely. More serious, as far as the dissatisfaction of the patient with the anæsthetist was concerned, was headache, due to alteration in cerebro-spinal fluid pressure. In a recent series in the German literature it had been shown that the incidence of headache was higher in the younger than in the older patients, but was unrelated to the size of the lumbar puncture needle. Its occurrence even after preliminary Evipan suggested that the functional element was small.

Dr. WILFRED HARRIS could not believe that the sequelæ were the direct effect of the action of concentrated anæsthetic on the nerves. He had a large experience of the injection of cases of sciatica with 2 per cent. and 5 per cent. Novocain, and in no case was there ever more than a transient anæsthesia or paræsthesia in the sciatic distribution. He regarded the lesion as sacromyelitic, and thought that the myelitis might be due to a vasoconstrictor effect of the procaine.

The PRESIDENT referred to a case described by Langton Hewer where percaine had been used, and quoted two cases of temporary mania following that drug recorded by Dickson Wright. He asked what was the effect of the anæsthetic on the spinal blood-vessels.

Prof. MACDONALD asserted that straight percaine and novocain had no effect on the blood-vessels. He and his students had given frequent injections into the skin of the procaine series and had found that in the absence of adrenaline there was, if anything, vasodilatation. The solutions were 10 per cent., and stronger than those used by Dr. Harris.

Dr. RUSSELL referred to unpublished work that demonstrated fibrinoid necrosis in the renal vessels of the rat following injection of pituitary extract.

Dr. FERGUSON said that he had not necessarily assumed a direct action of the anæsthetic on the cauda equina in the cases with the clinical syndrome of a cauda equina lesion. He had not had time to describe post-mortem appearances in three of his cases. There was evidence of vascular disease, an increase of hyaline material in the vessels walls, and decrease in the size of the lumen, in the posterior root ganglia in the lumbosacral region.

Dr. PURDON MARTIN referred briefly to a case of ascending myelitis progressing to encephalomyelitis following spinal anæsthesia. Unfortunately he had not seen the pathological material.

Dr. CRITCHLEY emphasised that the object of the meeting was not in any way to disparage a method that had proved itself useful, if not invaluable, in medicine, but rather to promote discussion to try to prevent the unpleasant and sometimes disastrous sequelæ.

LIVERPOOL MEDICAL INSTITUTION WITH MANCHESTER MEDICAL SOCIETY

A JOINT meeting was held at Liverpool on March 4th, with Prof. R. E. KELLY in the chair.

Mr. R. L. HOLT read a paper on

Gastritis

in which he stated that for the past eighteen months he had been collecting fresh specimens of stomach following partial gastrectomy for chronic gastric ulcer. His histological findings were substantially the same as those described by Konjetzny, Kalima, Puhl, and others. They differed simply in degree, a change readily explainable by the difference between pre-operative treatment in this country and in continental clinics. In more than half his cases there was naked-eye evidence of a subacute gastritis which was most marked in the pyloric antrum, but extended to a lesser degree into the duodenum and body of the stomach. On microscopical examination all his specimens showed evidence of a subacute or chronic gastritis. The histological changes were distributed in a patchy fashion throughout the gastric mucosa, erosions alternating with areas of normal mucosa, hypertrophy, and atrophy. He suggested that in this country we were apt to stress the importance of the presence of a definite peptic ulcer and to neglect the larger number of cases which had all signs and symptoms of peptic ulceration except X ray evidence of an ulcer. There was no doubt that the signs and symptoms usually associated with chronic peptic ulcer could be reproduced by a pyloric gastritis; according to Faber the signs and symptoms were produced by the gastritis and not by the ulcer. Mr. Holt went on to consider the factors generally considered of importance in the genesis of chronic gastric ulcer, and said in his view chronic ulcer might well be considered as a complication occurring in a case of pyloric gastritis. Most patients who consulted their doctors on account of gastro-intestinal disturbances were still classified non-committally as dyspepsia of one sort or another. He hoped that the recognition of the frequent occurrence of gastritis and the signs and symptoms which it produced would prove to be a great step forward in penetrating this diagnostic fog.

In the discussion which followed, Prof. HENRY COHEN, referring to the president's question: What is indigestion?, feared that if certain current continental ideas on gastritis were accepted, the impetuous surgeon would not stay for an answer, but would proceed to partial gastrectomy. Such mutilation was in his view quite unjustifiable in our present knowledge of the subject. We had yet to define with much greater care the condition of chronic hypertrophic gastritis, the factors which played a part in its production, and its relationship to gastric ulceration. It had been stated that gastritis almost invariably precedes ulceration and cancer of the stomach, but Church, Walters, and Wellbrock of the Mayo Clinic had shown that pyloric obstruction itself was a very important factor in producing gastritis, which was practically absent in cases of carcinoma of the stomach without pyloric obstruction, but was present in eleven out of twelve cases with pyloric obstruction. Many exogenous factors could cause inflammatory

changes in the gastric mucosa—mechanical, chemical, thermal, and bacterial. The president had referred to the observations of Beaumont on Alexis St. Martin; Prof. Cohen recalled that after St. Martin had been drinking "ardent spirits" for nearly a fortnight, Beaumont found characteristic changes of gastritis including erosions. Atrophic gastritis with achlorhydria had been studied in much greater detail. Its association with hyper- and hypochromic anæmias, subacute combined degeneration of the spinal cord, certain types of polyneuritis and steatorrhœa had been firmly established.

Mr. J. HOWELL HUGHES said that gastroscopy had revealed three types of gastritis: (*a*) the catarrhal, which showed change of colour of the mucous membrane from the normal orange to a deep red colour often with submucous hæmorrhages; (*b*) the atrophic, pale, flat mucous membrane usually seen in anæmias; and (*c*) the hypertropic type. Mr. Holt had discussed the pathological changes in the last, but similar changes were seen by means of gastroscopy: tortuous and redundant rugæ, small granulations on the rugæ, sometimes small varicosities, and in some cases small acute erosions. In this type a certain rigidity of the mucous membrane was obtained so that rugæ which normally flattened with air distension were still present, and therefore it seemed as if a permanent change in the mucous membrane had taken place.

Mr. JOHN MORLEY said that while it had been certainly proved that gastritis could be found in the mucosa surrounding gastric and duodenal ulcers in a large proportion of cases, we had hardly evidence to prove whether this condition was a predisposing cause or a result of the ulceration. Where pyloric gastritis was present without gross ulceration it was impossible to detect it without opening the stomach (apart from previous gastroscopy); and he felt some misgivings lest, if ever such an intangible lesion came to be regarded as an indication for partial gastrectomy, that very valuable operation might fall into disrepute. With regard to the atrophic gastritis associated with achlorhydria, the difficulty was that the condition was very common, and increasingly so with advancing age, and as a rule gave rise to no dyspeptic symptoms. The claim sometimes made that atrophic gastritis was a common predisposing cause of cancer he regarded as entirely unproved.

Dr. L. SAVATARD read a paper illustrated by lantern slides on

Tumours of the Skin

in which he stressed the clinical and histological evolution of the epithelioma in its progress to metastasis. The diagnosis of the early epithelioma was thoroughly portrayed and the multiformity, clinically and histologically, of cutaneous cancer was demonstrated.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY

AT a meeting of this society held at Liverpool on Feb. 26th, with Dr. J. W. BRIDE, the president, in the chair, a case of

Mucocele of the Appendix

was shown by Mr. J. W. BURNS.

The patient was a female, aged 42, who had found a lump in her side. She had had four full-time normal labours, the last one 9 years previously. Menstruation had been normal. Her only symptom was a "stretched" feeling in the right side relieved by loosening her clothing. There was no history of indigestion, vomiting, or pain. On examination a sausage-shaped tumour could be felt in her right iliac fossa. It was not absolutely fixed and there was no tenderness or rigidity. Per vaginam her pelvic organs appeared normal and the lower pole of the tumour could just be reached at the brim of the pelvis. An X ray investigation of the alimentary tract was made which showed that the cæcum was displaced towards the midline by the tumour. In consultation it was agreed that a laparotomy should be performed. The tumour was found on the outer side of the cæcum from which it had become sealed off; but it had become attached to the parietal peritoneum on the posterior wall by its distal end. The tumour was removed and found to be filled with translucent fluid. Its size was 7 by 3 by 2 in.

Mr. Burns said that great care was taken to avoid rupturing the cyst. In his opinion if this had taken place a condition of pseudomyxoma peritonei would have arisen with the appendix as the original focus.

The PRESIDENT said that a mucocele of this size must be very uncommon. He wondered what the connexion between pseudomyxoma peritonei and mucocele of the appendix really was.

Full-term Extra-uterine Pregnancy

Dr. F. J. BURKE showed two cases with extra-uterine pregnancies that had gone to term. In each a macerated fœtus was found at laparotomy. From one a degenerated placenta was removed without bleeding, but the patient died an hour later from hæmorrhage into the gestation sac. In the second the placenta was attached to the uterus only by a thin pedicle and it was easily removed, the patient recovering.

Prof. MILES PHILLIPS said that in his experience the management of the placenta was the important point at operation. He thought it best to leave it alone. He had had 6 cases, 1 of which he opened again some years later for another condition. Nothing was found in the abdomen except a few adhesions.—Dr. ROBERT NEWTON inquired whether it would be an advantage if the fœtus were dead to leave the case alone for some time.—Mr. ST. GEORGE WILSON showed a photograph taken post mortem of a woman aged 80 who had died of a broken femur. In the abdomen was a large calcified fœtus.—Dr. J. H. WILLETT said that he thought it very bad practice indeed to start exploring the abdomen too freely owing to the risk of serious hæmorrhage from separation of the placenta. He thought the operation should be done at once when the fœtal heart had ceased.—Prof W. FLETCHER SHAW mentioned the case of his own in which a living fœtus had been removed.

Dr. BURKE, in reply, said that he thought his first case would have died of septicæmia if she had not been operated on. In both his cases a diagnostic difficulty had been that no fœtal limbs could be felt.

Locked Twins

Dr. W. S. WRIGHT showed a case of locked twins in a primigravida aged 21. The first fœtus delivered had to be decapitated to free the second, which was in a state of white asphyxia when born and did not live. The mother recovered.

Dr. Wright said that von Braun had estimated the frequency of locking as 1 in 90,000. He said there were four ways in which locking might occur: (1) Both fœtuses presenting by the vertex entered the pelvis side by side. (2) As in his case, the

first child, presenting by the breech, the second by the vertex; the heads become locked by the chins. (3) The first child, presenting by the breech, may become locked by the chin on the body of the second fœtus lying transversely. (4) Both fœtuses presenting by the foot may enter the pelvis together.

Prof. PHILLIPS said that he thought a deficiency of liquor amnii was a possible cause.—Dr. C. M. MARSHALL said that for purposes of decapitation a saw could be passed round the fœtal neck with the thumb and forefinger using a Blond-Heidlar thimble.

Varicocele in the Female

Prof. FLETCHER SHAW said that while all text-books mentioned the condition none gave a satisfactory account of it. He quoted Emge who had said that the condition was the result of damage to the fibro-elastic suspensorium, and that only a small portion was the result of lesions in the walls of the vein. Carlos Castano had stated that it was the disease with the most subjective and the fewest objective symptoms. Graves had pointed out that the condition was often mistaken for inflammatory adnexal disease. Prof. Fletcher Shaw said his attention was first drawn to the subject by the late W. E. Fothergill in 1921. He said he was rather sceptical of a condition which could only be recognised in the erect position. Shortly afterwards his doubts were rudely shaken, as in 1923 he had three cases in one month, the notes of which he read to the society. They were aged 26, 35, and 31, and complained respectively of dysmenorrhœa, menorrhagia, and backache, of recurrent acute abdominal pains, and of aching pain in both iliac regions. They were diagnosed as chronic salpingitis or matted appendages and were treated by ligation and excision. In one case the condition recurred on the opposite side and required pan-hysterectomy. The other two were cured. Prof. Fletcher Shaw said that some thought retroflexion a probable cause of this condition, but only one of the three had a retroflexed uterus. He said that pressure on the broad ligament on the left side by the sigmoid or rectum seemed to be a factor. Later, in 1924, he had two more cases. Now after an interval of 15 years he had met with another. Summing up, he said that in each of the 6 patients the mass was large enough for him to diagnose a pelvic tumour. In 5 the pain was on the left side. In the first 3 he had excised the veins and not cured the patient. In the others a more drastic procedure had cured the symptoms. He said that the ætiology was obscure. There was no pronounced laxity of the pelvic floor. He thought treatment was unsatisfactory and that the condition was more common than generally supposed.

Mr. J. E. STACEY thought that the condition was very common and due to coitus interruptus. Examination in the erect position was valuable in diagnosis. In his opinion only a hysterectomy would cure a severe case.—Mr. T. F. TODD also thought these cases were due to an unsatisfactory sex life.—Prof. PHILLIPS said that it was noteworthy that the patient complained of pain the moment she stepped out of bed. He had rarely excised the veins; in older women if there was a prolapse he did a vaginal hysterectomy.

Prof. FLETCHER SHAW, in reply, said that he was doubtful about coitus interruptus being the main cause; of his first three cases, two were virgo intacta.

Sarcoma of Ovary and Lung

The PRESIDENT showed a specimen of malignant tumours of the ovary and lung in a girl aged 12.

The patient was sent to him with a history of loss of weight and a rapidly swelling abdomen for some months. She had recently developed a pain in the left chest, slight cough, and blood-stained sputum. Menstruation had not yet commenced. On examination she was cyanosed and had a pulse-rate of 136. The abdomen was fully occupied by a painful and cystic tumour. Free fluid was present. Dr. Bride said he thought the diagnosis lay between a tubercular ascites and pleurisy, or an ovarian dermoid or sarcoma of the ovary. He performed a laparotomy and found a soft ovarian tumour the size of a football. The tumour was removed without difficulty. A needle was passed into the left pleura and some blood-stained fluid withdrawn. The patient was much relieved for a few days, but she died on the eleventh day from a profuse hæmoptysis.

Dr. Bride showed three sections, two from the ovarian tumour and one from a nodule in the lung. He said that in his opinion the case was one of a mixed-celled sarcoma of the ovary with secondary deposits in the lung. He said that ovarian tumours were not uncommon in young girls. Bland-Sutton had referred to a hundred cases of ovariotomy in girls under 15. Of these 41 were simple cyst-adenomata, 38 were typical dermoids, and the remaining 21 were sarcomata. Dr. Bride said that sarcomata occurred much earlier than carcinomata, the majority at the age of puberty. They were usually bilateral, round celled, and extremely malignant. Solid ovarian teratomata contained embryonic tissues from all the layers of the blastocyst. They were frequently malignant with sarcomatous metastases. Chorion epithelioma of the ovary might represent a form of teratoma.

Operation for Prolapse

Mr. ST. GEORGE WILSON showed a cinematograph film of the interposition operation for prolapse. He said that it was especially indicated in cases with a big cystocele which were difficult to cure by Fothergill's operation without unduly narrowing the vagina. A second important indication was that the patient should have passed menopause. If the cervix was elongated, it should be amputated in the usual way. He described his technique, and said it was as practised and described by the late Prof. Blair-Bell.

Prof. FLETCHER SHAW said he thought a reasonable criticism of the operation was that after it had been completed the cervix could still be pulled down to the vulva. He thought the operation must be restricted entirely to women beyond the menopause.

Dr. S. B. HERD thought there were two indications for the operation: (1) a previous failure with colporrhaphy, and (2) a retroflexed uterus that needed suspension. He had had more difficulty with micturition in his cases after this operation than after colporrhaphy.

Mr. STACEY said he had seen a case of pregnancy after this operation. There had been no difficulty during pregnancy but a Cæsarean section was required.—Mr. W. GOUGH had seen one case where a carcinoma corporis occurred after the operation.

Mr. WILSON said that in his opinion a bulky uterus was a contrary indication. He thought that even with a small uterus the operation was useful, as in most cases cystocele was the main trouble, and the use of this operation obviated making the vagina too small. He said that he always amputated the cervix in these cases.

REVIEWS AND NOTICES OF BOOKS

British Encyclopædia of Medical Practice

Vol. II. By Various Authors. Under the general editorship of Sir HUMPHRY ROLLESTON, Bart., G.C.V.O., K.C.B., M.D., D.Sc., Emeritus Professor of Physic, Cambridge. With the assistance of Prof. F. R. FRASER, M.D., F.R.C.P.; Prof. G. GREY TURNER, M.S., F.R.C.S.; Prof. JAMES YOUNG, D.S.O., M.D., F.R.C.S.E.; Sir LEONARD ROGERS, K.C.S.I., F.R.C.P., F.R.C.S., F.R.S.; and F. M. R. WALSHE, O.B.E., M.D., D.Sc., F.R.C.P. London: Butterworth and Co., Ltd. 1936. Pp. 767. 35*s*.

THE second volume of this important work, with its formidable array of editorial and contributory talent, opens with an article on apraxia by Macdonald Critchley and takes us as far as carriers in infective disease by J. A. Arkwright. It may be remarked, in passing, that the alphabetical method of describing diseases produces some strange bedfellows, for we find athetosis hobnobbing with athletics, backache with baker's itch, biliousness with birth-palsy, and caisson disease metaphorically rubbing shoulders with cancer. But this, though in itself a little disconcerting at first, is no great matter; a more real objection to the system is that it necessitates much cross-reference which may prove exasperating to the earnest student who, for example, if he turn up "bacilluria" is referred to "coliform bacillary infections" which is in another volume. The articles themselves, however, are as good as they ought to be. Perhaps of special value to practitioners might be mentioned W. S. C. Copeman's on rheumatoid arthritis which is full of sound sense and free from fads, and A. G. Timbrell Fisher's on osteo-arthritis. Another interesting article is that by J. B. Mennell on the treatment of backache and lumbago by various manipulative and supporting measures which is illustrated with some excellent sketches. G. W. Bray deals fully with the vexed problem of asthma, and occupational disease is well represented by W. E. Cooke's article on asbestosis, illustrated with some beautiful microphotographs taken by the author and C. F. Hill. C. P. Symonds and Hugh Cairns, collaborating on the subjects of brain abscess and brain tumour, supply a valuable note on the use of hypertonic salt solutions for temporarily relieving increased intracranial tension by which means a comatose patient will usually recover consciousness for long enough to coöperate in a neurological examination. In the article on cancer by W. E. Gye and John Hosford, the modern methods of treatment, including the radium "bomb," are well summarised. T. S. Rippon's article on aviation describes the existing scheme for the examination of pilots, the methods used for examining the special senses, and the special tests of fitness for aerobatics which demand normal circulatory and muscular tone combined with good abdominal muscles. It seems that "blacking out" due to cerebral anæmia can be hindered or prevented by contracting the abdominal muscles and so raising the intra-abdominal pressure. In the sphere of pædiatrics, Alan A. Moncrieff writes on Still's disease and cancrum oris and Norman B. Capon on asphyxia in children. J. F. Halls Dally writes sanely on blood pressure, high and low, and C. E. Lakin on arterial disease and degeneration. Athletic injuries by W. E. Tucker and athletics by Adolphe Abrahams with a note on the nervous factor in sport go to show that the English can still take their pleasures sadly. Abrahams is an opponent of strenuous sport for women on the ground that it "diverts energy from channels for which it is specially required," by which presumably he means childbearing. Quite apart from the fact that, under existing conditions, a large number of women, condemned to childlessness, seek an outlet for their energies in athletics, the contention that the habit of taking strenuous exercise makes for difficult labour is quite unsupported by evidence.

Inorganic Chemistry

A Survey of Modern Developments. By Sir GILBERT MORGAN, D.Sc., LL.D., F.R.S., Director of Chemical Research; and F. H. BURSTALL, M.Sc., A.I.C., both of the Department of Scientific and Industrial Research of the Chemical Research Laboratory, Teddington. Cambridge: W. Heffer and Sons, Ltd. 1936. Pp. 462. 15*s*.

THE main function of this book is to illustrate the statement that the type of chemical combination designated by the chemist as "coördination" is not merely characteristic of substances like cobalt-ammines, but actually enters into the everyday laboratory experience of many branches of pure and applied chemistry. In an introductory chapter the classification of the elements and the interpretation of chemical valency in terms of the electronic structures of the atoms are summarised. In the next ten chapters the various types and structures of the compounds formed by the individual elements are dealt with systematically, following the periodic order of the elements. Special attention is given to recent advances in this subject and to the discussion of the coördination compounds of the elements. The latter part of the book is devoted to the description of coördination compounds employed in the arts and industries and of compounds of particular types—e.g., the carbonyls and nitrosyls. The final chapter on the organic derivatives of metals and metalloids, many of which (e.g., arsenicals and mercurials) are therapeutic agents, contains much matter of direct medical interest. The book summarises an enormous amount of information which is of considerable interest to the chemist, but mostly too highly condensed and recapitulatory in style for the general reader. The chapters on the isotopes of hydrogen and heavy water, however, and on the natural and artificial transmutation of the elements give useful accounts of some of the more outstanding recent developments in this field of inorganic chemistry.

The Art of Treatment

By WILLIAM R. HOUSTON, A.M., M.D., F.A.C.P., formerly Professor of Clinical Medicine, University of Georgia; formerly Visiting Professor of Medicine, Yale-in-China. London: Macmillan and Co., Ltd. 1936. Pp. 744. 21*s*.

IN spite of the truth of the statement that the main essential of treatment is diagnosis, the best management of a sick man is not a simple corollary of a correct diagnosis but an art which can be learned only through study and practice. The medical schools probably deserve the criticism made by others as well as by Dr. Houston that they pay too little deliberate attention to the teaching of treatment; the medical staff leaves half the treatment of in-patients to the nurses, and it seldom undertakes

the full prolonged responsibility of looking after an out-patient in the way that a good family doctor would do it.

Dr. Houston's book is an attempted answer to this criticism. It is written for students and young doctors who already know something of medicine, of pharmacology, and of therapeutic technique. It is concerned with the approach to the patient, the art of using all that knowledge to the maximum advantage in his particular case. A long introduction deals with general principles, which range from the dosage of drugs to the question of doctors' fees; the writing is discursive, with a certain conscious brightness, but the plea that treatment needs to be thought about, more thoroughly and more honestly, is undoubtedly sound. The body of the book deals in turn with the broad subdivisions of therapeutics, under which diseases roughly group themselves according to the chief mode of treatment they call for. There are the patients who are to be treated mainly by nursing care; diseases amenable to specifics; conditions in which the chief therapeutic method is psychotherapy or guidance—this section occupies one-third of the book; conditions where treatment mostly means a limitation of life; conditions where treatment is largely based on physiological considerations; and finally conditions in which treatment is tentative and experimental. The discussions are fairly full, the style easy, almost conversational, with frequent use of anecdote or illustrative case-history; and the author is concerned more with his general point of view than with comprehensiveness of detail. The book certainly exemplifies the American willingness to discuss at length matters which the Englishman either does not think about or takes for granted, but if we admit the criticism of the schools which it is written to meet, we must welcome it as a helpful contribution to the teaching of therapeutics. There can be no quarrel with this generalisation of the author's: "It comes out that most therapeutic conceptions and plans are simple; that success turns mostly on doing simple things well."

Die "atypische" Pneumonie

By Dr. FRANK KELLNER, Facharzt für Lungenkrankheiten; Leitender Arzt der Tuberkulose-Fürsorgestelle Kassel. Munich: Otto Gmelin. 1936. Pp. 52. M.2.70.

CHEST physicians have long been familiar with forms of pulmonary inflammation which do not fit in with the classical descriptions of lobar or broncho-pneumonia. Often these atypical pneumonias begin with a short mild febrile attack accompanied by cough; but in some the course is afebrile throughout. Physical signs are few although X ray examination shows an opaque area usually near the hilum but quite common in any of the lobes. Resolution takes place in the course of a few weeks and the chief interest in the condition lies in the difficulty of distinguishing it from an early tuberculous infiltration.

Dr. Kellner considers that recent epidemics described as "influenza" and characterised by inflammatory processes of the upper respiratory tract, the bronchial tubes, and the lungs have included so large a percentage of these atypical pneumonias that the term atypical should no longer be applied to them. The few physical signs combined with the fact that these patients rarely undergo X ray examination, rather than its rarity, accounts for the scanty attention paid to the clinical differentiation of this condition. Although it is occasionally difficult to distinguish between pneumonic consolidation and tuberculosis of the hilar glands it is chiefly in the "initial infiltration" type described by Assmann that confusion occurs. The absence of upper respiratory and bronchial inflammation and the predilection of tuberculous infiltrations for peripheral and especially subclavicular sites may help in the diagnosis, but often, according to Dr. Kellner, it is only possible to distinguish the conditions by following on the screen the course they pursue. He thinks that many of the cases of initial infiltration which are said to have cleared up in a few weeks have really been patches of non-specific inflammation.

His brochure, which is illustrated by a small number of carefully selected and well-reproduced radiograms, provides a useful summary of our knowledge on this interesting and important subject.

Manual of Public Health Laboratory Practice

By J. R. CURRIE, Henry Mechan Professor of Public Health, University of Glasgow. Edinburgh: E. and S. Livingstone. 1936. Pp. 378. 21*s*.

THE design is to cover the field of laboratory work with which those engaged in public health work or proposing to acquire a D.P.H. must be acquainted. The author succeeds in producing a manual in which no aspect of laboratory work connected with public health escapes adequate notice, and has outlined technical details so clearly as to provide a guide to anyone who knows his way about a laboratory. The indications suggested for the use of the various procedures and the interpretation of the results are orthodox and sound. Sections are included on entomology and meteorology which contain useful matter rarely to be found except in more specialised works. The appeal of this book will not be to laboratory workers only. To the practising medical officer of health it will prove invaluable.

The Principles of Dental Medicine

Second edition. By F. W. BRODERICK, M.R.C.S., L.R.C.P., L.D.S., Hon. Dental Surgeon to the Royal Victoria and West Hants Hospital. London: Henry Kimpton. 1936. Pp. 575. 30*s*.

Dr. F. W. Broderick was one of the first to expound the view that dental disease is due to a local expression of general disease. This thesis was elaborated in a book which appeared in 1928 under the title "Dental Medicine." While the main concept remains the same in this second edition, DR. Broderick slightly changed the title and has added so much new matter that he has produced what is practically a fresh book. He claims that his goal has been reached and that dental medicine in contradistinction to dental surgery is now a practical proposition.

The book is divided into three parts. In the first the writer describes certain biochemical factors which he regards as causative in many forms of dental disease: blood reactions, colloidal states, the endocrine and vegetative systems, and calcium metabolism. The amount of evidence he adduces to support his theories is impressive in its bulk, but many of the views he quotes are individual ones which are themselves open to criticism. The second part deals with ætiology and treatment, both remedial and preventive, of dental disease, and represents the application of the principles enunciated in the first part. Dental caries and pyorrhœa are in Dr. Broderick's view essentially due to a disturbance of

colloidal equilibrium which affects the acid-base balance of the blood. If a condition of acidosis is produced by such disturbance, the end-result so far as the teeth are concerned is dental caries; on the other hand, a state of alkalosis is thought to lead to pyorrhœa. Dr. Broderick has now linked up his work with the views expressed by Dr. J. R. McDonagh and appears to accept completely the latter's concept of disease. In treatment a variety of methods is recommended in which dentistry as usually understood plays little part. Alkalis such as sodium bicarbonate are used with a view to the prevention of caries and derivatives of cholin and ergot in cases of rampant caries. Dr. Broderick advocates the administration of small doses of insulin to children with extensive caries on the assumption that caries is due to a dehydration of the colloid particles and that insulin will bring about hydration. For pyorrhœa he recommends ammonium chloride, thyroid extract, and colonic lavage; and follows up this treatment by subcutaneous injections of various kinds. There seems to be little scope for the ordinary methods of dentistry in his concepts of dental disease. The illustrative cases recorded seem to have shown considerable improvement while under treatment along the lines suggested.

Cosmetic Dermatology

By HERMAN GOODMAN, B.S., M.D. London: McGraw-Hill Publishing Co., Ltd. 1936. Pp. 591. 36*s*.

AT first glance this book is likely to bewilder the reader, for Dr. Goodman has apparently cut himself adrift from all ordinary conventions of text-book arrangement. But the knowledge he displays is prodigious, even if his method of imparting it is peculiar. Not only physicians and dermatologists but beauty specialists and students of cosmetics should be grateful to him, for here at last, combined with a wealth of cosmetic pharmacy, is just the type and quality of honest dermatology they need. They will learn, for instance, what a "pore" really is, and why when "enlarged" it cannot be "shrunk." The swindle of bleaching by creams and lotion is also exposed, and the futility of attempts to feed the skin from without, or to eliminate wrinkles by tissue or muscle oils. It is easy to see that the author is a dermatologist at heart, although unlike most of them he has not scorned to acquire some knowledge of cosmetics.

Part I of his work is a dictionary of ingredients, in alphabetical order from acacia to zinc sulfide (so spelt). All those commonly used by dermatologists as well as manufacturing chemists are set out, although it is not clear why such proprietary injections as Afenil, or ointments such as Cycloform should be included under their manufacturers' names, while strontium bromide is not alloted its proprietary name of Ekzebrol. The author does not limit his observations to the scope suggested by his title; no self-respecting beauty specialist is likely to be called upon to treat infantile eczema.

In Part II the ingredients previously considered are combined in "tested formulæ" and attached in groups of 6 to 20 to the particular disease or "blemish" under consideration. These again are arranged in alphabetical order beginning with acne and ending with vanishing creams and vitamins. All that pertains to cosmetics is discussed: depilatory, dusting, and face powders; hair dyes, lipsticks, eye preparations, including eyewash, eye tissue cream, eye-shading bases, eyebrow creams, eyelash oil, even a "pain reducer" for eyebrow epilation. We deprecate the inclusion of chapters on the treatment of burns, poison ivy, psoriasis, scabies, ringworm, and wounds, for it is surely unwise to encourage experts in cosmetics to make diagnoses and recommend the treatment for diseases, infections, and injuries.

Appendices on cosmetic colours derived from different sources, on perfumery and on weights and measures conclude the book, which is likely to appeal not only to dermatologists and cosmetic specialists but also to the laity.

Blood Cultures and their Significance

By HILDRED M. BUTLER, B.Sc. Melbourne, Bacteriologist, Baker Institute of Medical Research, Alfred Hospital, Melbourne. London: J. and A. Churchill Ltd. 1937. Pp. 327. 15*s*.

BLOOD culture has been a routine procedure in clinical bacteriology for many years, but in many institutions its importance has not been fully realised either by clinician or bacteriologist. Possibly this is because nobody is particularly interested. The clinician asks for a blood culture not really expecting to obtain much information. The bacteriologist does the culture in something of the same spirit, and mostly the result is either negative or negligible in the sense that a growth of non-pathogenic organism is obtained. The clinician's scepticism as to the value of blood cultures is partly at least attributable to lack of pains in the bacteriologist to ensure that the best cultural results are obtained with the minimum of contamination. Miss Butler, following a study and trial of published methods, has here laid down an efficient technique whereby fallacious results could be largely avoided. It may well be that some of the methods she describes could be further improved by the use of devices elaborated by individual workers who have not published them in detail, but for the omission of unpublished methods Miss Butler can hardly be blamed. Quite apart from technique the practising bacteriologist can find here a useful summary of the results which have been achieved by blood culture in almost all conditions. The interesting chapter on bacteræmias following operative procedures deserves attention of surgeons and dental surgeons.

A book of this description serves as a reminder of the results achieved by blood culture, and no bacteriologist, however senior, will feel that the time spent in reading Miss Butler's book has been wasted.

Physician, Pastor, and Patient

By GEORGE W. JACOBY, M.D., Past President of the American Neurological Association and the New York Neurological Society. London and New York: Paul B. Hoeber (Medical Book Department of Harper Bros.). 1936. Pp. 390. 15*s*.

THIS considerable volume represents the musings of a wise physician over a wide field of medicine in its social and religious relationships; and inasmuch as the author casts his eye over the whole history of culture, he displays a wide, if not penetrating, erudition. In surveying the health of mankind from one part of the world to another, he maintains an attitude which is dignified and catholic in taste and tolerance. The scattered wisdom in this book is not sufficiently well integrated for one to make out a consistent philosophy of medicine, but many readers will find entertainment both in the text and in the charming illustrations drawn chiefly from Oriental art.

THE LANCET

LONDON: SATURDAY, MARCH 27, 1937

ERGOTAMINE TARTRATE FOR MIGRAINE

In 1934 BROCK, O'SULLIVAN, and YOUNG reported that ergotamine tartrate was effective in cutting short an attack of migraine. This discovery was made empirically after the trial of a number of substances reputed to be of value, and has since been confirmed by other workers. Dr. MARY E. O'SULLIVAN [1] has recently reported the results of the trial of this remedy in a larger series of cases. Over a period of two years 97 patients were treated for 1132 headaches, and 89 of these were relieved of a total of 1042 attacks, which has been calculated as a saving of 39,000 hours of suffering. The subcutaneous method of administration of the drug was found to be more effective than the oral, relieving a larger proportion of patients and giving relief more quickly. An initial subcutaneous dose of 0·25 mg. was given and repeated after two or three hours if the headache persisted, or later if it returned. It was rarely necessary to give more than 0·5 mg. in a single dose, but the longer after the onset of the attack the treatment was given the larger the dose needed. For oral administration as many as five 1·0 mg. tablets might be necessary in a single dose to cut short an attack.

On another page is a letter from Dr. T. W. GORDON KELLY describing his experience of ergotamine tartrate in the treatment of his own migraine. Finding that this drug would cut short his headaches after many other remedies had proved useless he tried it as a prophylactic, taking 0·25 mg. subcutaneously at bedtime on the eve of a busy day, and found that in this way he could guarantee himself a day free from headache. After the frequent administration of ergotamine tartrate for many months he has experienced no ill effects, either immediate or remote. Dr. O'SULLIVAN discusses the prophylactic use of this drug and advises against it. It must be remembered that few sufferers from migraine have headaches as frequently as Dr. KELLY, and the regular administration of such a powerful substance for many years to avert attacks occurring only at intervals of weeks or months is clearly undesirable. Moreover, since in almost all cases an attack can be aborted within an hour or so by this treatment it is more economical to cut short an attack when it arises. The prophylactic use of ergotamine, therefore, though interesting is not widely applicable. Dr. KELLY confirms the observation that ergotamine tartrate is far more effective when given subcutaneously than when swallowed. This may be because during an attack of migraine when nausea is present, and still more after vomiting has occurred, absorption from the stomach is impaired. At this stage, in fact, ergotamine may make the vomiting worse without improving the headache. Dr. KELLY'S note that sublingual administration is far superior to ingestion will, if generally true, prove of considerable value, since it will make the patient independent of the doctor's hypodermic needle, and enable an effective dose to be taken at the earliest possible moment. Also the effective dose is less, two tablets given sublingually being equivalent to the five or six found necessary if the drug is swallowed.

The mode of action of ergotamine is at present unexplained. It has proved useless for the relief of headaches due to conditions other than migraine and has no analgesic properties. Originally employed on the hypothesis that it inhibited the nerve-endings of the sympathetic it has been shown by P. SOLOMON [2] to be without effect on the psycho-galvanic reflex, which is an index of sympathetic activity, and to relieve the headache without influencing the sympathetic nervous system as a whole. Dr. O'SULLIVAN believes that the action of the alkaloid is dependent on the humoral state of the organism, and is "intimately connected with the complex mechanism of the still unexplainable migraine seizure." Medical sufferers from migraine who are acquainted with the work of G. W. PICKERING and others on the production of headache with histamine can hardly have failed to be struck by the resemblance between the brief headache induced by the intravenous injection of histamine and the migrainous headache. Histamine headache has recently been further studied by CLARK, HOUGH, and WOLFF,[3] who have confirmed the observations of PICKERING and HESS, and support their inference that this type of headache is due to dilatation and stretch of the pial and dural arteries and their surrounding tissues. In migraine as in the histamine headache dilatation and increased pulsation of the temporal arteries occurs, and it seems reasonable to infer that the state of the intracranial arteries is similar in the two conditions. It is possible that ergotamine acts by restoring tone to the stretched smooth muscle of the intracranial arteries, and observations on the effect of ergotamine on the histamine headache would be valuable. Ergotamine, though of outstanding value as a palliative, does not cure migraine, but the elucidation of its mode of action might bring us nearer to the understanding of the nature of the disorder. The suffering, social inconvenience, and economic loss occasioned by migraine must in the aggregate be enormous. A patient with the disorder in a severe form is subject at frequent intervals for the greater part of a lifetime to pain, discomfort, and incapacity as severe as those experienced by many patients with an intracranial tumour. Denied even the

[1] *J. Amer. med. Ass.* 1936, **107**, 1208.

[2] *Arch. Neurol. Psychiat. Chicago*, 1936, **35**, 963.
[3] *Ibid*, p. 1052.

dignity of a bad prognosis he, or more often she, is likely to exhaust the sympathy of friends and relatives and to feel a recurrent nuisance—no more use, in fact, during the attack than a sick headache. To be able to offer such unfortunates a reliable palliative is much; but it is to be hoped that the need for systematic investigation of the ætiology of migraine will not be overlooked.

NEW LIGHT ON THE LIFE-CYCLE OF THE MALARIA PARASITE

IT has long been a source of interest to the biologist and of chagrin to the clinician that the malaria parasite, when banished from the blood stream by quinine, is able somewhere to maintain its existence. That the parasiticidal effect of quinine has been at the same time so complete and yet so futile is one of the notable mysteries of clinical medicine. If it is true that the sporozoites injected by the mosquito complete their life-cycle in the cells of the circulating blood, then the infection should be scotched by the ingestion of quinine sufficient to maintain a lethal concentration in the blood stream. And yet a patient who has taken a gramme of quinine daily before and during infection by mosquito bites, and for every day throughout the incubation period, develops an attack of malaria precisely as if no drug had been given. The life-history of the parasite in the vertebral host cannot then be as obvious as all that; for, though SCHAUDINN described the penetration of sporozoites into red blood corpuscles, no one it seems has succeeded in repeating his observations.

Some years ago Lieut.-Colonel S. P. JAMES made the suggestion [1] that the sporozoites, when they are injected by the mosquito, may be carried to reticulo-endothelial cells of the lungs and other organs in which they complete their asexual cycle of growth and sporulation—a process already observed in the bird parasite, halteridium. Colonel JAMES has now confirmed this suggestion for a malaria parasite itself—not in man, but in the domestic fowl. At a laboratory meeting of the Royal Society of Tropical Medicine and Hygiene on March 18th he demonstrated the life-history of the *Plasmodium gallinaceum* as worked out by Mr. P. TATE, Ph.D., and himself at the Molteno Institute in Cambridge. Using this avian strain, brought from Ceylon by Prof. BRUMPT of Paris, JAMES and TATE have witnessed a cycle of development occurring, not in red blood-cells, but in the reticulo-endothelial cells of the spleen, liver, kidneys, and particularly the endothelial cells lining the capillaries of the brain. In chickens which had died of a malarial attack, despite the destruction by quinine of all the parasites in the peripheral blood, they found the capillaries of the brain blocked with masses of schizonts, the result being death from paralysis and coma. Those who were able to study the slides submitted at the laboratory meeting were left in no doubt that in avian malaria there is a schizogenous cycle of development occurring in reticulo-endothelial cells. Parallel observations have been made for the blood-forming cells by two Chicago workers [2] and for the reticulo-endothelial cells by RAFFAELE [3] in Rome. JAMES and TATE have observed the entry of the parasite into blood-forming cells, and every stage in their growth and multiplication until the merozoites burst the cell and are ready to enter other endothelial cells and red blood-cells, to begin the cycle anew.

But while this is true of certain avian parasites it may not apply to those of man, although there is some justification for thinking that it may, if, as we believe, it is a fact that the three fundamental discoveries in malaria—associated with the names of ROSS, MCCALLUM, and ROEHL—were made first in birds and only afterwards in man. If the analogy should prove true, the discovery affords no short cut to treatment. But any light shed on the life-history of malaria parasites should indicate the direction in which successful treatment lies; for a drug which circulates only in the blood stream cannot effectively attack extra-hæmic parasites. In the meantime the biologist may have to revise the classification of plasmodia in view of their affinity for tissue cells.

SILICOSIS IN THE RAND GOLD MINES

SINCE the inception in 1916 of the Miners' Phthisis Medical Bureau [4] of the Union of South Africa elaborate records have been kept of the incidence of silicosis and tuberculosis on the Rand, and of the fate of those afflicted, in so far as they could be traced. The report, signed by Dr. L. G. IRVINE, the chairman of the Bureau, on the three years ended July 31st, 1935, recently issued, contains, like its predecessors, a summary of the more important data for the whole period. It is thus possible to get an idea of the trends in the character and incidence of silicosis in the mining population of the Rand and to form an estimate of the value of this great medical organisation in its twofold function: (1) to award certificates which enable those who have contracted the disease to get compensation, and (2) to help in its control and prevention. The legislation which led up to the establishment of the Bureau is set out on p. 773 with some account of the corresponding developments in this country. Inasmuch as there is clearly a need for the extension of these, it is from every point of view worth investigating the results achieved in South Africa, where the preventive measures and the rigid supervision of the Rand miners seem to have been to some extent effective in combating the disease. The improvement in working conditions on the Rand in recent years is shown by the great increase in the average period of service underground before the incidence of the disease. The mean duration of the

[1] *Proc. R. Acad. Med., Amst.* 1931, **34**, 1424.

[2] Huff, C. G., and Bloom, W. (1935) *J. Infect. Dis.* **57**, 315.

[3] Raffaele, G. (1936) *Riv. Malariol.* **15**, 309, 318.

[4] Report upon the work of the Miners' Phthisis Medical Bureau for the three years ended July 31st, 1935. Pretoria: Government Printer, 1936.

previous underground service in all new cases of silicosis among miners who have worked only in scheduled mines was 9½ years in 1919–20, and as much as 16⅔ in 1934–35, the commonest duration being 18 years, and the longest 28 years. It must be understood, of course, that these data refer only to the previous service of men who actually contract silicosis and take no account of the services of the great majority whose lungs were not and may never be affected. It should be noted too that a diagnosis of silicosis is recorded when the earliest definite signs are detected at the periodical examinations submission to which is a condition of employment. The number of cases of silicosis which have arisen since 1919, when the Act was passed defining three stages of silicosis, has been affected in the main by two factors whose influence has been conflicting: a decided and progressive decline in the liability to contract silicosis, and, on the other hand, an increase in the number of miners who have worked continuously for long periods in the mines. As a result of the predominating effect of the second factor, the actual number of new cases of silicosis has increased during the year 1934–35, after an uninterrupted fall from 364 in 1926–27, when 13,525 miners were examined, to 180 in 1933–34, when 19,731 miners were examined. In 1934–35 the new cases numbered 193 amongst 21,812. The increase (of 13 cases) is attributed to a substantial increase in the number of miners with over 18 years' service and a slightly higher incidence of silicosis amongst them. It is satisfactory to learn that in all the new cases the disease was in the earliest stage.

Tuberculosis is classified, for the purposes of the Bureau, as occurring with silicosis and alone. Patients with either form are eligible for compensation and are excluded from further work in scheduled mines as soon as their disease is detected, while patients with simple silicosis are allowed to continue at work. During the three years under review, 7 cases of tuberculosis with silicosis were detected in white men; of these 5 had previously been notified as having silicosis. The "production-rates" (incidence-rates) over the period averaged 0·115 per 1000. Tuberculosis alone was detected during the three years in 81 cases, giving prevalence-rates for each year of 1·79, 1·10, and 1·18 per 1000 respectively. The experience of the Bureau has shown that a considerable proportion of cases, which at the outset manifest the clinical and radiological signs only of tuberculosis, later on present evidence of the development of an element of silicotic fibrosis also. For purposes of compensation these cases are immediately transferred to the class of "tuberculosis with silicosis." The native labourers, numbering during 1934–35 255,816, also undergo initial and periodical examinations, and a final examination on the termination of their underground employment. These examinations are carried out by 42 whole-time medical officers from the medical staff of the mines and of the central hospital of the Witwatersrand Native Labour Association. Their task is onerous, inasmuch as nearly 90 per cent. of this native labour force is replaced each year. Amongst this shifting population the prevalence-rates for tuberculosis have shown a lower trend since 1928; the combined rates for tuberculosis and tuberculosis with silicosis reached the lowest recorded figure in 1934–35 (for all forms of silicosis, 1·97, and for all forms of tuberculosis, 3·23 per 1000), being less by at least 40 per cent. than it was ten years ago. The great preponderance of cases of active tuberculosis amongst the compensatable diseases leads Dr. IRVINE to emphasise once more the cardinal importance of directing all possible effort to the elimination of cases of communicable tuberculosis amongst native mine-workers, and of bringing under control all occupational and other conditions which can be shown to foster the incidence of that infection amongst them.

In view of this encouraging evidence, can it be said that the production of silicosis has been arrested in the mines on the Rand? Unfortunately not; amongst the white "new Rand miners" (that is, those recruited since 1916 and subjected to an initial examination, periodically repeated throughout the whole period of service) who have been more or less continuously at work for periods of 16 to 18 years, it is stated that "the incidence of silicosis has become significant." The Bureau suggests that since in respect of these men the medical prophylactic measures may be presumed to have done their best, any further improvement will have to come from the technical side of dust prevention. It is fortunate that at this stage the help is available of an expert physicist, appointed by the Transvaal Chamber of Mines who are undertaking a thorough reinvestigation of the problem of dust production in the mining processes. By means of the thermal precipitator instrument, developed under the auspices of the Medical Research Council,[4] a more complete understanding of the problem of dust production will be gained and this should lead, in turn, to the development of an efficient system of dust suppression. The value of the records and experience of an established organisation such as this Bureau in assessing the effect of new technical measures is inestimable, and Dr. IRVINE and his colleagues can be assured that their work is appreciated not only in the Transvaal but throughout the world wherever silicosis is a problem.

AT a meeting of the Royal College of Physicians of London held on March 22nd, Lord Dawson was re-elected President.

Mr. H. L. Eason, vice-chancellor of the University of London and medical superintendent of Guy's Hospital, has been appointed principal of the university from July 1st, 1937, to Sept. 30th, 1941, in succession to the late Sir Edwin Deller.

IN a recent report of the annual dinner of the Royal London Ophthalmic (Moorfields) Hospital an allusion to the resignation of Dr. Russell Brain from the staff of the hospital might from its wording imply that he had retired from the medical profession. This all will be glad to know is not the case.

[4] Physical Methods for the Estimation of the Dust Hazard in Industry. By H. L. Green and H. H. Watson. *Spec. Rep. Ser. med. Res. Coun., Lond.* No. 199. London. 1935.

ANNOTATIONS

AN ADVISORY FACTORIES COUNCIL

MOST practitioners have suffered from apparently arbitrary decisions given by State Departments upon matters in which the decision of a minister of the crown is final. The Ministry of Health in its relationships to insurance practitioners is one case in point, another is the relation of the Ministry of Pensions to ex-Army pensioners and their claims. The decisions given may be right or they may be wrong; in either case a feeling is left that impartial justice has not been administered. In industry we hear criticisms of the method by which certain regulations have been made and administered; new industrial processes, it is said, have been stifled by the exacting nature of certain regulations. These criticisms may be—and often obviously are—unfounded. But is there not a way out? There are nowadays statutory advisory councils and advisory committees for almost every conceivable subject of legislation: agriculture, cinematograph films, the dye-stuffs industry, forestry, housing, import duties, traffic regulation, plumage importation, poisons, shipping, unemployment insurance, and so on. It may usefully be recalled, too, that the report of the Committee on Ministers' Powers (a valuable State document, published in 1932, of which too little notice has been taken) observed that the practice of consultation between a department and the particular interests affected by a proposed exercise of delegated law-making power should be "extended so as to ensure that such consultation takes place whenever practicable." It seems to us that a strong case could be made out for an advisory council which might lessen, if it could not share, the responsibility placed upon the Secretary of State and the Home Office inspectorate under the Factories Acts and the idea has influential support.[1] It remains to inquire what kind of questions such an advisory body should be competent to consider. In the new Factories Bill a clear and very important distinction is drawn between regulations which can be made by the Secretary of State without formal inquiry and *special* regulations which can only be made after the issue of draft regulations (see second schedule to the Bill). The procedure proposed is for the Secretary of State to issue a draft of the regulations, stating a time during which an objection may be lodged. On the receipt of an objection the Secretary of State may amend and re-issue the draft. If however a *general* objection is made, the Secretary of State shall direct an inquiry to be held before making regulations. Or, if he thinks fit, he may order an inquiry in the absence of a general objection. These inquiries are to be held in public by a competent person, appointed by the Minister, who may hear on oath any evidence which in his opinion is relevant. It will be important to understand what constitutes a general objection to a draft regulation. A general objection may be made either by a majority of the occupiers of the factories affected, or by any person who satisfies the Secretary of State that he represents a majority of the persons employed in those factories. Furthermore if it appears to the Secretary of State that by reason of special conditions any of the requirements of the draft regulations may be unnecessary or inappropriate to any class or description of factory. The Secretary of State may accept a general objection from employees or employed, as in the previous instance. It seems to us that under certain easily conceivable circumstances the Secretary of State might prove to be difficult to satisfy. The main functions of an advisory board might be (1) to advise him concerning the (ordinary) regulations which he alone is competent to make, e.g., the setting up of standards of adequate ventilation, lighting, &c., and the interpretation which inspectors should place upon the necessarily vague definitions contained in the Bill; and (2) to advise him whether or not a general objection to any of his draft regulations has in fact been made out. Whatever else an advisory council might do, it would certainly be useful in these two capacities.

[1] *Brit. med. J.* March 13th, p. 562.

RHEUMATIC NODULES, SPONTANEOUS AND INDUCED

THE suspicion that since rheumatic nodules tend to occur over pressure points trauma may be a factor in their production is strengthened by some experiments recently carried out by Massell, Mote, and Duckett Jones.[1] A series of patients were given injections of 2–3 c.cm. of their own blood in the subcutaneous tissue of the olecranon region, and for the succeeding ten days the injected elbow was rubbed against the bedclothes for several minutes six times a day. In every case a hæmatoma and a diffuse thickening of the subcutaneous tissue were produced which lasted ten days, and then gradually disappeared; some left no trace; others became the site of discrete painless subcutaneous nodules which were indistinguishable clinically from rheumatic nodules. Of a group of 20 patients with clinical rheumatic fever, 18 developed induced nodules; 13 out of 26 patients in whom active rheumatism was suspected on laboratory evidence but who showed no clinical signs developed nodules, as did only a few (14 per cent.) of a group of choreics and patients with inactive rheumatism. Only 1 of a control group of 34 patients of the same age-period showed a nodule response, and in this case there was a possibility of the patient having suffered from rheumatic fever. Further investigations were made into the nature of the trauma required to produce nodules. In active rheumatism neither friction alone nor friction with the injection of novocain had any effect, although nodules appeared in the opposite arm, which received blood also. In a small group of cases the injection of saline produced nodules almost as often as did the patients' own blood. The authors make no mention of the incidence of spontaneous nodules in the cases under observation, nor, apparently, did they investigate the effect of injecting blood from a non-rheumatic patient; if this device were successful it would look as if rheumatic nodules are merely the result of injury in an unusually labile connective tissue, and make less likely the possibility that the nodule is an "allergic response" to the injection of the patients' own blood.

In another accompanying paper the same authors [2] describe the histology of a number of nodules of varying ages, both spontaneous and induced. They had the foresight to remove these under nerve block anæsthesia, thus avoiding the tissue distortion which invariably follows local anæsthesia. The changes in the natural rheumatic nodule are similar to those

[1] *J. clin. Invest.* 1937, **16**, 125.
[2] *Ibid*, p. 129.

described by L. Gross and J. C. Elwlich[3] in the rheumatic myocardium. The fibrous tissue swells and becomes markedly eosinophilic, and about the same time there is an infiltration of polymorphonuclear leucocytes and proliferation of perivascular mesenchymal cells, although multinucleate cells of Aschoff-Coombs type are uncommon; the vessels show endothelial proliferation, and occasionally medial vacuolation. In the later stages there is organisation around the necrotic area, with revascularisation and increasing fibrosis. The artificial nodules showed a similar morphology but the area of damage was more extensive and much phagocytosis of the blood pigments obscured the picture. The histology of the saline-induced nodule is not described. Although these observations are of considerable interest there seems little hope of applying them to the practical problem of determining by a simple means whether or not rheumatism is still "active."

EVERGREEN PEOPLE

THE case of a patient contributed by Prof. Lawford Knaggs to this issue (see p. 745) is a remarkable story from several points of view. It is an account of a very uncommon condition; it is completed by observations over more than 24 years; it is told by a surgeon who has retired from active operating for many years but who has nevertheless retained a keen interest in the study of disease; it adds to our knowledge. Infectious non-suppurative encephalitis of this kind must be extremely rare and such complete recovery one would imagine to be rarer still. It is truly remarkable that the brain could bulge through a subtemporal opening on the left side of the skull for as much as 1 in. above the surface and yet that there should be so little pressure upon Broca's area that the child could converse intelligently six days after the operation.

Surgeons are often reproached for not knowing the remote results of their operations more accurately. Only those who have attempted to learn the histories of urban patients who have been operated upon some years before know how discouraging is the meagre response. Some have moved to other districts none knows where; others are dead and no information about the particular disease in question is forthcoming; others again fail to reply because they are care-free and grudge the trouble. The recognition of these things led to the foundation of the Mackenzie Institute in St. Andrews. What is certainly true is that clinical records would be made much more complete and often extremely valuable if more retired doctors retained sufficient interest in medicine to be curious about their one-time patients. Many of them have lived long enough for their records to have exceptional value. But there are few men so remarkable in this respect as Prof. Knaggs, who since his retirement has published one of the most authoritative descriptive works on diseases of bone that we possess. He belongs to that small band of men who retain their creative mental faculties as long as life lasts. Sir Charles Ballance was another recent conspicuous instance. Prof. Knaggs is following great examples. Metchnikoff did some of his greatest work after he was sixty; Michael Angelo died in the height of his fame and ability at eighty-nine; and two years ago a former professor at the Slade School had his self-portrait bought for the nation when he had passed his eightieth year. Other instances will occur to many minds at once. Difficult as it is to believe, it is true that the mental, inventive, and artistically emotional faculties, although they may not be capable of such sustained activity, may remain at their peak until very advanced life.

[3] *Amer. J. Path.* 1934, **10**, 467, 489.

THE ELECTROPHYSIOLOGY OF THE CORTEX

A MONOGRAPH by Dr. A. E. Kornmüller[1]—the first to appear on the electrophysiology of the cortex—is the complement to the classical histological researches of Oskar Vogt and his collaborators on the "cyto-architectonics" of the cerebral hemispheres. This fact gives it a special value and also exposes it to certain criticisms. Vogt has devoted his life to producing evidence that the cortex of man and animals is divided into a score or more of well-defined "fields" distinguishable by their histological character and mostly also by the effects of stimulating them. The greater part of this book consists of an attempt to show that in the rabbit and the ape these various fields are characterised also by their specific electrical discharges ("Eigenströme"), during comparative rest and by their electrical response to sensory stimulation.

Although the detail of Vogt's claims may still be a subject for controversy, no one supposes that all parts of the cortex exhibit an identical structure, and it is certainly important to ascertain whether there is a variation in electrical properties corresponding with the undoubted histological differences. The records now reproduced in this book purport to supply the evidence upon which the verdict must be based. Technically they are excellent; they were obtained by means of some of the most elegant machinery which has ever been used for the study of a biological problem, specially designed and built by Tönnies for this work. Their interpretation, however, is a matter upon which opinions will differ. In the main, Dr. Kornmüller is probably correct in asserting that the various parts of the cortex produce electrical discharges of different types; but the records here submitted suggest as much variation in any one area from time to time as between different areas, and this is disappointing to those who were quite willing to be convinced. Moreover it is tempting to wonder whether this preoccupation with local differences is at all likely to throw fresh light on the problem of the origin and significance of the electrical phenomena themselves, notably on those observed in man, which are only briefly mentioned.

There is nevertheless much valuable matter in this monograph, perhaps the most interesting to medical men being the study of the electrical discharges observed in the rabbit's cortex during the exhibition of convulsant drugs such as strychnine and mescaline. The "convulsion waves" produced by the local application of such drugs do not seem to spread far from the site of application, and their character depends to some extent upon the area concerned, less upon the nature of the convulsant. Areas distant from that to which the drug is applied usually show a diminution of the specific resting discharge, though Gozzano has shown that the symmetrical point in the opposite hemisphere may discharge synchronously with the abnormally stimulated point, unless the corpus callosum is divided. The relation of the electrophysiological data to general theories of central nervous function is discussed, perhaps prematurely. It is difficult, for example, to see what direct bearing Dr. Kornmüller's

[1] Die Bioelektrischen Erscheinungen der Hirnrindenfelder. By A. E. Kornmüller, Kaiser-Wilhelm-Institut für Hirnforschung, Berlin-Buch. Leipzig: Georg Thieme. 1937. Pp. 118. RM.7.80.

hypothesis of specific electrical activity has on the question of whether the central nervous system acts "as a whole" or not, if indeed this is a pertinent question. The amplifier in neurophysiology has proved to be something of a Pandora's box; it has certainly released a number of awkward problems, but these are likely to be solved sooner by patient experimentation than by attempts to fit them into preconceived theories.

SUPPURATIVE TENOSYNOVITIS

THE treatment of tendon-sheath infections of the hand is notoriously unsatisfactory and good results are uncommon. Dr. Robert Grinnell has reported [1] a detailed study of 125 cases of suppurative tenosynovitis that have been followed up for an average period of 16 months, thus making it possible to correlate the functional result with the method of treatment and with the various other factors. This contribution is the more important because definite facts about the results of suppurative tenosynovitis are hard to find, but if the treatment of this crippling condition is to be improved these must be studied. One of the defects of Kanavel's admirable book is the scanty information on this point. Nearly half Grinnell's cases were due to wounds at the finger flexion creases—chiefly at the distal crease. The most important of the other causes was infection of the distal closed space, which was the site of primary infection in 18 per cent. of the patients, thus proving the necessity for prompt and careful treatment of this very common type of whitlow.

The diagnosis of an uncomplicated case of tenosynovitis is fairly easy, but it is often very difficult to know when an infection elsewhere in the finger has invaded the tendon sheath. This is well illustrated in the series for the correct diagnosis was made in nearly 90 per cent. of the primary cases, but in only about 60 per cent. of the secondary cases. Though in 12 patients uninfected portions of a tendon sheath were opened owing to a wrong diagnosis, in 11 no apparent ill effects ensued. Grinnell considers that when reasonable suspicion of tenosynovitis is present it is far better to incise than to delay. A neglected sheath will give much greater disability than one opened unnecessarily. Generally the sheath was drained by the usual antero-lateral incision, the flexion creases being avoided. In a few cases, however, to provide freer drainage he used Auchincloss's method of exposing the sheath by dissecting up from in front of it a flap of skin and subcutaneous tissue with its base proximal, and the results were encouraging. Post-operative treatment is not described at any length, but it appears that the application of sterile dressings periodically moistened but not removed has better results than "hand soaks," by giving less opportunity for secondary infection to develop. Nothing is said about the stage at which passive and active movements were started.

Perhaps the most valuable data in the paper refer to the functional results, judged mainly by the mobility of the finger joints. There was no movement at the interphalangeal joints and little at the metacarpophalangeal in 35 per cent. of the cases; only 17 per cent. showed an almost complete return to normal function. The best results were obtained in the thumb—except when the ulnar bursa was secondarily involved, and the worst in the little finger. This is explained by the fact that the thumb has only one long tendon to become adherent, one less joint to become stiff, and many more small muscles to take over the functions of the long tendon. The little finger has in addition the great handicap that its sheath communicates with the ulnar bursa. It is noted that whereas spread of infection from radial to ulnar bursa was not uncommon, there was only one case of spread in the reverse direction. This has been reported by other observers and is difficult to explain. Grinnell attributes the poor results chiefly to late operation. The average duration of tenosynovitis before operation was 6·2 days, and the time factor was shown to be particularly important in the causation of tendon necrosis, which occurred in more than half the cases. But even when the best treatment is given promptly results are often bad. "The last word," he concludes, "has obviously not been said as to the best type of incision, the best method of drainage, and the best post-operative treatment."

[1] *Ann. Surg.* January, 1937, p. 97.

VOLUNTARY HOSPITAL FINANCE

ALTHOUGH the paper contributed by Mr. C. E. A. Bedwell, house governor of King's College Hospital, to the Medico-Legal Society early this year was primarily concerned with the legal status of voluntary hospitals, the full text, now available in the current issue of the *Medico-Legal and Criminological Review*, shows that it also provided material in relation to their financial position. In particular Mr. Bedwell directed attention to the analogy between the Local Government Act, 1929, and the Education Act, 1902. Under the latter many voluntary schools have ceased to exist and the system of education has gradually become more uniform in character. Moreover, directly the local authorities provided schools on any considerable scale the cost of education steadily increased and the difficulties of the voluntary schools grew in the same proportion. Exactly the same situation is confronting the voluntary hospitals. For the present, according to figures given by Sir Charles Harris in the *Times* of March 12th, the income of the voluntary hospitals is continuing to expand though that admittedly is not the same thing as keeping pace with the requirements of the population. The figures do not show to what extent additional income is being actually received from payments by local authorities. Sir Charles Harris advocates some form of rationalisation by which the voluntary hospitals "should abandon the traditional isolation of each unit in favour of progressive and well-organised team-work." He looks to Lord Sankey's Commission to provide some solution of the problem, while he cannot accept the suggestion of a previous correspondent of the *Times* that assistance might be given through a national committee instead of allowing the voluntary hospitals to be subjected to the pressure of local competition with its inevitable result. Even in London where the considerable resources of King Edward's Hospital Fund are available no special attempt has been made to maintain the voluntary system in an area of South London where it was practically non-existent until King's College Hospital was moved there in 1913. In spite of strenuous struggles it has remained incomplete, although additions have recently been made, so that the need for beds in that area became an issue in the recent election of the London County Council. Accordingly an L.C.C. institution within a short distance of K.C.H. has been developed into a hospital and another hospital is being built at Tooting. Thus the delay of the voluntary hospital authorities to pursue a united and considered policy is providing the opportunity for the local

authorities to put their plans into operation. The same thing is taking place all over the country, as can be seen by any diligent reader of the *Public Assistance Journal*, which frequently publishes articles surveying their developments. Sir Charles Harris deplores that an awakening did not take place more promptly on the passing of the Act of 1929, but even now the friends of voluntary hospitals do not seem to realise all that is happening around them.

SOCIAL CONDITIONS IN SOUTH WALES

FEW efforts have ever been made to collect and set forth in detail the social state of any country or district. Yet again and again historians are searching for such records of the past whence to obtain both the setting and explanation of the deeds of which they tell. An industrial survey of South Wales in three stout volumes,[1] crowded with information concerning the life of the people on that great coal-field, now in a state of depression, provides the sort of document which will be a permanent source of reference. As the story is told of how overseas trade has been hampered by international quotas, subsidies, and devaluations, the interdependence of every part of the civilised world upon every other is brought forcibly to attention. South Wales is profoundly affected by what is happening in France, Germany, Italy, Japan, or Polish Upper Silesia. Import duties have injuriously affected the export of coal; and a general resumption of foreign lending and a large measure of international free trade are needed to restore the coal exports of South Wales. Even so mining still stands out first among the occupations, accounting for 37 per cent. of the workers—but it claimed over 50 per cent. in 1923; it employed 218,835 persons in 1924 but only 129,889 in 1934. The tinplate trade and iron and steel industries each find work for 5 per cent., and the distributive trades for some 12 per cent. Other important industries are few. The district is geographically unique with a series of deep, narrow valleys running parallel from the lowlands, bordering upon the Severn sea, in a northerly direction up into the mountains. Each valley is cut off from its neighbours by intervening hills and is self-contained. Each has come to be thickly populated by a mining community entirely dependent upon the collieries for its existence. Communications are by road and rail down the valleys towards the sea upon which the coal is carried across the world. Such mining communities do not take readily to new forms of industry. Yet necessity is a hard master; and an example may be sought from what occurred in the "black country," that great triangle bounded by Birmingham, Wolverhampton, Dudley, and Stourbridge, in the 'seventies and 'eighties of last century. Then the great 30-foot seam of South Staffordshire coal was being worked out and the iron ore of the district was being exhausted. The district, left desolate but densely populated, with little work and worse prospects than to-day face South Wales, seemed doomed. Unfortunately, no industrial survey was then made to enable the progress to be traced by which that black country, far from the seaboard, with no minerals, and its only asset an unemployed population, has become most prosperous, turning out chemicals, glass, galvanised and enamelled ware, bicycles, motor-cars, nails and bolts, needles, watches, and jewellery. This is a transformation at which South Wales may look and take courage. For she has to her advantage still large reserves of ungot minerals and magnificent seaports, over and beyond her most valuable commodity—her man power. An interesting note is sounded by considering the trend of the population which, like that elsewhere in these isles, promises to decline in the near future. This decline in South Wales may be expected to amount to 79,000 males between ages 15 and 60 by 1943; so that the surplus of labour in the region which is placed to-day at about 80,000 may be expected to have disappeared by that year without the introduction of new industries. Special attention is due to the third volume of this valuable survey which points out what new activities could be advantageously developed in South Wales.

[1] The Second Industrial Survey of South Wales. Part I: Industries. Part II: Facilities. Part III: Development. University Press Board, Cardiff. 1937. 30*s.* for 3 volumes.

NIGHT-BLINDNESS

HEMERALOPIA or night-blindness, sometimes wrongly called nyctalopia, may be due to various intra-ocular diseases. So-called idiopathic or essential hemeralopia, which is by no means uncommon and which may be present in mild or moderate degree without the patient knowing it, may, according to H. Jeghers,[1] be due to deficiency of vitamin A. Vision in dim light depends upon the metabolism of visual purple in the retinal rod cells. When the eye is exposed to bright light, the visual purple becomes exhausted, but is rapidly regenerated if enough vitamin A is present in the body. By various photometric means, night-blindness due to lack of vitamin A may be quantitatively measured. Thus Jeans and Lentmire found slight or moderate deficiency of vitamin A in 21 per cent. of a large group of children and in as many as 79 per cent. in other more extensive surveys. Among adults both I. C. Park and Jeghers found similar deficiencies ranging from 10 per cent. to 50 per cent. in various groups. In almost every instance where they tried to do so, these observers were able to bring the photometer reading to normal and cure the hemeralopia by giving vitamin A by mouth, or carotene, for two weeks or longer. This association between night-blindness and lack of vitamin A is of practical importance, especially to motorists. P. Vignalou, who in 1933 reported the case of a driver who had repeated motor accidents, always at night, and proved to have night-blindness, pointed out that the French laws ignore hemeralopia as a ground for refusing a driver's licence, and the same holds true for the laws of this country and the United States. But not only motorists are concerned in this matter. Aviators, engine-drivers, members of the fighting services and, in our own profession, radiologists who do fluoroscopies in darkened rooms, are other obvious examples of persons in whom night-blindness may be a dangerous disability. The subject is certainly urgent enough to warrant the attention at least of those concerned with traffic problems.

[1] *New Engl. J. Med.* 1937, **216**, 51.

TUBERCULOSIS IN INFANCY

A SHORT but careful study of the mortality in a group of tuberculin-positive infants is reported by Dr. Miriam Bailey from the department of epidemiology of the Johns Hopkins University school of hygiene and public health and the department of pædiatrics of the Johns Hopkins Hospital.[2] 170 children, of whom 72 were white and 98 coloured, found to be infected with tuberculosis before reaching two years of age, were kept under observation for

[2] *Milbank Memorial Fund Quarterly*, 1937, **15**, No. 1, pp. 37–47.

periods ranging from one to five years. In the first year after discovery of infection nearly 1 in 10 of the white children died, and rather more than 1 in 5 of the coloured children. In the following four years the mortality was very much lower, 3·4 per cent. amongst the whites, 9·6 per cent. amongst the coloured, so that about 70 per cent. of the total mortality experienced in the five-year period occurred during the first year after infection was observed. In every time interval the coloured children suffered a mortality more than twice that of the white children. This higher rate appears to be attributable to their greater tendency to develop parenchymal lesions. Once such involvement of the lung parenchyma has taken place there is no difference between the two races in fatality, and nearly one-third were dead within the first year, a figure which may be compared with the 7 per cent. mortality of those who displayed no parenchymal lesion at initial X ray. Clinical experience suggests that the younger the child the more unfavourable the prognosis, and this is borne out in this inquiry. Children found to be infected before six months of age had a fatality-rate of nearly 78 per cent. within five years of the discovery of infection; those whose infection was found at 6–12 months of age had a rate of 18 per cent., and those at 12–24 months of 15 per cent. Children with known intrafamilial sputum-positive contacts showed a slightly higher mortality than children not known to have been exposed to infection.

THE MARIE CURIE HOSPITAL

"It was her hope and belief that the Medical Women's Federation might, as a corporate body with a large available amount of clinical material, institute some scheme of research under which individual members' work might be directed, correlated, and unified, so as to yield more valuable results than might accrue from solitary effort."

THIS is a quotation from our report [1] of an address on cancer research given by Dr. Helen Chambers to the London Association of the Medical Women's Federation on Feb. 12th, 1924. At the conclusion of her stimulating address the Association appointed a cancer research committee which initiated radium therapy clinics at four hospitals, in or near London, staffed by women doctors; a director of research coördinated the treatment given and followed up the results. These were satisfactory from the start; but the inconvenience of having four centres as far apart as central London (2), Clapham, and Brighton, was so great that the bold decision was made in 1929 to found an ad-hoc institution which is now the Marie Curie Hospital with 39 beds and the most modern X ray equipment in addition to an ample supply of radium. Dr. Chambers did the pathological work of the hospital until her death last year, in cramped quarters and with minimal facilities. And her own patient and careful examination of the material submitted, no less than her unobtrusive service on the board of management and on committees, contributed much more towards the realisation of her dream of productive coördinated research than she herself ever realised. It was fitting that the spacious new laboratories described in our last issue should have been named after her and that her friends should be given an opportunity to contribute towards their equipment as a memorial to her zeal and vision. When Queen Mary visited the hospital on March 19th to declare the new block open Lord Dawson reminded the company of the fine results being obtained by the honorary medical staff working under Dr. Elizabeth Hurdon as director of research—results which Dr. Henri Coutard described later as "parmi les meilleurs du monde entier." Mlle. Eve Curie, by now a familiar friend at the hospital, added her tribute and her thanks for the successful development of her mother's life work on its humane as well as its scientific side. Mrs. Walter Runciman, chairman of the board of management, showed that nowadays there is much reason for hope and good cheer in a hospital chiefly concerned with the treatment of cancer, and it was on this optimistic note that the ceremonial part of the proceedings resolved into an informal gathering of those interested in various aspects of the hospital's work. That this is of the first order is clear from the reports issued from time to time; it should soon be possible to present results over a ten-year period, and since efforts to secure an international acceptance of certain methods of keeping records have been successful these results will be available for comparison with the late results obtained at continental clinics. We have every hope that the Marie Curie Hospital will continue to rank among the best.

[1] *Lancet*, 1924, 1, 389.

A CENTENARY APPEAL

THE decision to mark the Royal Medical Benevolent Fund's centenary with a special appeal has not had the success that it so clearly deserved. Its purpose was to raise the Fund's annual income from £14,000 to £20,000, thus enabling the grants to distressed medical practitioners or their dependants to be substantially increased. The report for 1936, given at the annual meeting on March 16th, shows that letters were sent to 44,694 members of the profession during the year, asking for new subscribers and for donations to the centenary fund, and accompanied by a historical record of the work of the Fund during the hundred years, compiled by Sir Humphry Rolleston. This resulted in an addition of £3872—after costs amounting to £660 had been deducted—and 117 new subscribers. The committee were not content with this and decided from past experience that the response might be bettered by a reminder, and a further 220 subscribers were enrolled from the London district. This has encouraged the committee to extend this year the scope of the reminder to the rest of England, Scotland, and Wales. The addition to the Fund has raised the annual income from subscriptions and donations by £510 to £12,671. A heartening feature of the appeal was the energy shown by helpers in various centres in organising social functions, which succeeded in producing over £400. On the other hand, the publicity given to the appeal was responsible for even more calls for help. There were 136 new applicants, which with the 229 annuitants brought the total of those who received financial aid during the year to 851, the sum given being £21,409. A request for donations at Christmas brought in £728, which allowed gifts of 30*s*. to many of the more needy cases. Though the appeal has so far been only partly successful in its original aim, the response to the reminder in London encourages the hope that a further request to the rest of the country will greatly decrease the deficit. Even the fact that an allowance of £40 a year to a medical man could be increased to £52 shows how important it is that the renewed efforts of the Fund's committee should be rewarded by the participation of every member of the profession. Surely that is not too much to ask.

PRINCIPLES OF MEDICAL STATISTICS

XIII—FURTHER FALLACIES AND DIFFICULTIES

Proportional Rates

IT is not uncommon for some confusion to be shown over the difference between absolute and relative figures. For instance, take the following figures for England and Wales in 1932.

Age-group (years).	Estimated population in age-group.	Number of deaths registered.		Death-rates per million.	
		All causes.	Tuberculosis (all forms).	All causes.	Tuberculosis (all forms).
5– 9	3,181,900	6601	774	2075	243
10–14	3,349,100	4643	827	1386	247

From the estimated populations and the numbers of deaths registered the death-rates experienced in the two age-groups can be calculated. At ages 5–9 the death-rate from tuberculosis was 243 per million persons and at ages 10–14 it was 247, a negligible difference. In other words the risk of dying from tuberculosis did not vary materially in 1932 between these two age-groups. Supposing, however, we had no means of estimating the populations exposed to risk, and the sole information at our disposal consisted of the deaths registered from tuberculosis and from all causes. In that event the only rate that it is possible to calculate is a proportional rate—i.e., the deaths from tuberculosis as a percentage of the deaths from all causes. At ages 5–9 this rate is $774 \times 100 \div 6601 = 11{\cdot}7$ per cent. and at ages 10–14 it is $827 \times 100 \div 4643 = 17{\cdot}8$ per cent. The *proportional death-rate* from tuberculosis is 52 per cent. higher at ages 10–14 than at ages 5–9. It is necessary to be quite clear on the meaning of this proportional rate. The information it gives is that *in relation to other causes of death* mortality from tuberculosis is more frequent at ages 10–14 than at ages 5–9. This is certainly an important aspect of the figures; it clearly shows that any action which reduces deaths from tuberculosis (without changing the death-rate from other causes) will have more effect on the total death-rate at ages 10–14 than at ages 5–9, because more of the total deaths are attributable to tuberculosis at the higher ages. But obviously we cannot deduce from the proportional rates that the *absolute* risk of dying from tuberculosis differs in the same ratios; we have, in fact, seen that the absolute risks are equal. The proportional rate is dependent upon the level of two factors—viz., the deaths from tuberculosis and the deaths from all causes—which form the numerator and denominator of the ratio. Differences in *either* factor will influence the ratio. In the case cited the numerators (deaths from tuberculosis) are nearly equal, 774 at ages 5–9 and 827 at ages 10–14, but the denominators (deaths from all causes) differ appreciably, 6601 at 5–9 and 4643 at 10–14. The proportion of deaths due to tuberculosis at ages 10–14 is higher than the proportion at ages 5–9, not because of a rise in the incidence of tuberculosis but because there is a fall in the incidence of other causes of death. While other causes of death—e.g., diphtheria, scarlet fever, measles—are declining, tuberculosis remains nearly steady. Relatively, therefore, its importance increases, absolutely it is unchanged.

Changes in Proportional Rates

To take another example, in 1917 the deaths at age 0–1 year formed 12·9 per cent. of all the deaths registered in England and Wales, whereas in 1918 the proportion was 10·5 per cent. It does *not* follow that the infant mortality-rate of 1918 was lower than that of 1917; in fact it was very slightly higher, 97 per 1000 live births compared with 96 in 1917. The lower *proportion* in 1918 is due to the great increase in deaths *at ages over 1* as a result of the influenza pandemic. The numerator of the ratio did not change appreciably (64,483 deaths under 1 in 1917 and 64,386 deaths in 1918); the denominator did change appreciably (from 498,922 deaths at all ages in 1917 to 611,861 deaths in 1918).

Similarly an absence of change in a proportional rate does not necessarily denote an absence of change in the absolute rate. If in 1900 there were 5 per cent. of all deaths due to cause X and in 1930 the proportion was still 5 per cent., this is not incompatible with an absolute decline in the mortality due to cause X. If the death-rates due to cause X and to all other causes have *both* been halved the proportion must remain the same.

PROPORTIONAL DEATH-RATES IN OCCUPATIONS

Correspondingly a higher proportion of deaths due to cause X amongst, say, coal-miners than amongst bank clerks does not necessarily denote an absolutely higher death-rate from that cause amongst the former. Expressing the numbers of deaths due to each various cause as percentages of the total number due to all causes gives a series of figures that must add up to 100. Differences between any one proportion amongst miners and bank clerks must to some extent influence all the other proportions. For instance, if the proportion of deaths amongst miners which is due to accidents is very much higher than the corresponding proportion amongst bank clerks it follows that other causes of deaths amongst miners must be *proportionately* decreased. The point is clear if we suppose only two causes of death to exist, say accidents and tuberculosis. Amongst populations of clerks and miners of equal size there are, let us suppose, in the former 50 deaths of each kind, while amongst miners there are 100 deaths from accidents and 50 deaths from tuberculosis. The actual mortality-rates from tuberculosis (to deaths divided by the number in the population) are identical for the populations are of equal size; but proportionately the tuberculosis deaths form only one-third of the total amongst miners and one-half amongst clerks. The relative excess of tuberculosis amongst clerks is not due to an absolutely greater risk of this disease but to a lower risk from accidents.

The cardinal rule in the interpretation of proportional rates is to pay equal attention to the numerator and to the denominator of the ratios. Departure from that rule may be illustrated in one or two examples culled from published figures.

PROPORTIONAL RATES IN HOSPITAL STATISTICS

In hospital statistics the population at risk—i.e., from which the recorded cases are drawn—is usually not known. Mortality or incidence rates cannot, therefore, be calculated, and one falls back on proportional rates.

For example, cases of pernicious anæmia are expressed as a proportion of all cases of illness admitted to hospital,

the hospital being situated in the United States. Of the 47,203 admissions of persons who were born in the United States 291, or 0·62 per cent., were cases of pernicious anæmia; of the 2814 admissions of persons who were born in England 25 were cases of pernicious anæmia or 0·89 per cent.; and of the 7559 admissions of persons who were born in Russia 14 were cases of pernicious anæmia or 0·19 per cent. It is impossible to accept these figures as adequate evidence of racial differences in the liability to pernicious anæmia. The mortality from that disease is correlated both with age and with sex, the death-rate rising with age and falling more heavily on women than on men. There is no doubt that the incidence varies similarly. The numerator of the proportional ratio (the number of cases of pernicious anæmia) is therefore influenced by the sex and age composition of the population from which the cases are drawn, and it is unlikely that the composition is the same in native-born and immigrant populations.

Equally the age and sex compositions of the populations at risk in the area may influence the admission rates for other causes of illness—i.e., the denominators of the ratios—since many causes of illness are correlated with age and sex. In the absence of any knowledge of the constitution of those populations it is impossible to draw reliable conclusions from these different proportions of pernicious anæmia.

PROPORTIONAL RATES IN INFANCY

The infant mortality experienced at different stages of the first year of life was differentiated between urban and rural areas and gave the following figures:—

Deaths per 1000 Live Births at Different Months of Age

—	Under 1 month.	Months.				Under 1 year.
		1–	2–	3–	6–12	
Urban ..	29·67	12·06	8·73	22·77	22·14	95·37
Rural ..	23·77	7·44	5·18	10·98	11·29	58·66

Expressing these figures as proportions it is concluded that "it is significant that while the proportion of infants succumbing in the first month after birth was 31 per cent. in urban areas, it rose to 41 per cent. in rural areas, which points to the lack of institutional facilities in connexion with confinements in such districts and to the difficulty often experienced of summoning skilled medical assistance in time." Clearly that conclusion does not necessarily follow from the proportions. The *absolute* rate at under 1 month is *lower* in the rural areas than in the urban areas (23·77 to 29·67)—though possibly it might be lower still given better institutional facilities. But it will remain *proportionately* higher just as long as the urban environment shows a relatively excessive death-rate at ages 1–12 months. If 69 per cent. of the deaths are at ages 1–12 months in the urban areas and only 59 per cent. in the rural areas, then whatever the absolute rates at age 0–1 month the proportions *must* be 31 in the urban and 41 in the rural areas at that age—i.e., a *relatively* unfavourable state of affairs in the rural areas. Given the best possible institutional facilities that state of affairs will prevail so long as the urban areas show higher rates during the remainder of the first year.

From the absolute rates in fact two arguments may be advanced. The smaller advantage in the rural areas at 0–1 month compared with later ages may be the result of inferior institutional facilities there, or it may be due to the fact that the urban environment does not exert its maximum unfavourable effects until after the age of one month.

STATISTICS OF POST-MORTEMS

Attention has been paid in recent years to the question as to whether cancer of the lung has increased. The recorded mortality statistics have been regarded as unsatisfactory evidence, for the rise apparent in those figures may be due to more accurate certification of death now than in the past. The number of post-mortems at which this form of malignant disease is found is held to be a more certain and less changeable basis. This number can be taken as the numerator of the rate. But in the absence of a knowledge of the population from which the hospital draws its inmates, an incidence rate cannot be calculated. In its place a proportional rate is used, taking, for instance, as the denominator either the total number of post-mortems carried out, or the total of all cases of disease admitted to the hospital. Thus we have the cases of cancer of the lung observed at post-mortem as a proportion of all post-mortems or of all cases admitted. Calculating this ratio year by year shows its secular trend. In interpreting this trend we have to consider possible changes both in the numerator and the denominator. The numerator, cases of cancer of the lung found at post-mortems, may be influenced by an increasing interest in the condition; persons in whom it is now suspected may be more frequently submitted to post-mortem than in past years. If the denominator were unchanged this would give an apparently rising incidence. But it is equally important to inquire whether the denominator has changed—i.e., all post-mortems or all cases admitted. If the criteria upon which post-mortem examination or admission to hospital are based have changed with time this will also inevitably influence the trend of the ratio. An addition to the denominator of cases or post-mortems that would not have been present in earlier years must result in a declining ratio, even though the actual incidence rate of cancer of the lung on the population exposed to risk has not changed.

For example, suppose the incidence of cancer of the lung in the unknown population is 5 cases per annum, all of which come to the hospital, and are recognised, and this number is unchanged between 1900 and 1930. If in 1900 there were 500 post-mortems carried out then the proportional rate is 5 in 500; if in 1930 a laudable attempt to determine more accurately the causes of death of patients led to an increase of the post-mortem examination to 600, the ratio falls to 5 in 600, without any change in the real incidence.

It may, perhaps, be reiterated that the denominator needs just as much consideration as the numerator.

The Problem of Attributes

In medical statistics subdivisions of the cases treated have often to be made in order to ensure that like is being compared with like. It is obviously idle to compare the fate of two groups of patients with cancer of the cervix uteri treated by different methods, if one group contains 50 per cent. of persons whose disease was far advanced when treatment was begun and the other had but 10 per cent. in the same category. To avoid this fallacy an attempt is made to classify the patients according to the stage, or severity, of the disease when first seen. Such a division, it is recognised, may be influenced by the different interpretation of what constitutes degrees of severity by the observers, and such statistics must always be regarded with that difficulty in mind.

For instance, one hospital classifies two-thirds of its patients to stages of disease 1 and 2 and one-third to

stages 3 and 4; another hospital has only one-quarter of the patients at stages 1 and 2 and three-quarters at stages 3 and 4. Do patients really present themselves at those hospitals in such widely differing proportions or is the difference due to differing standards of classification? The answer to that question is unknown, but in comparing the fatality-rates following treatment the problem must not be disregarded. It must be remembered that different standards of classification may favourably influence one hospital as compared with another at *every* stage of the disease. This may be shown diagrammatically by supposing the patients are set out in a line in order of severity, from mildest to most severe.

Hospital A ..	Stage 1	Stage 2	Stage 3	Stage 4
Hospital B ..	Stage 1	Stage 2	Stage 3	Stage 4

Hospital B includes in stage 1 a proportion of patients which Hospital A relegates to stage 2; the latter hospital, therefore, has only the very best of the patients in stage 1 and will in consequence have a more favourable result than Hospital B at that stage. In the stage 2 group Hospital A includes favourable cases which B has called stage 1, while B includes less favourable cases which A classifies to stage 3. Hospital A will again show a better result. The same difference is apparent in the subsequent stages, Hospital B having only the extreme cases in stage 4 and A including some which B would relegate to stage 3. At each stage Hospital A will, therefore, compare favourably with Hospital B, though in the total there may be no difference whatever.

In any series of statistics based upon division by attributes by different observers this possible fallacy must be considered with care. The difficulty occurs acutely in the assessment of malnutrition amongst school-children where different observers use different criteria of determination and place a different meaning on such terms as "good," "fair," "poor," &c. The result has led in the past to an incidence that differs unbelievably from one place to another, but so far no objective measure has been devised which will satisfactorily replace the subjective assessment. In the same way differing interpretations by different persons made the statistics of the blind and dumb collected at the census enumerations in the past of little value, and led to the questions being abandoned. Faced with such statistics the reader must always ask himself: Could these classifications have been made by means of objective measurements, which, given equal skill in making those measurements, would not vary appreciably from observer to observer? If not how far may the presence of subjective influences affect the results and in what way?

A. B. H.

SPECIAL ARTICLES

SILICOSIS AT HOME AND ABROAD

A PLEA for the extension of legislation in this country in respect of silicosis was made in a communication to the Medico-Legal Society reported in our columns on March 6th. In this connexion it is of interest to review the progress in the gold-mining industry in relation to the legislation for compensation for silicosis.

History of Legislation on the Rand

Gold was "proved" on the Rand in 1885, and mining started there in 1886. At first the mine workings were shallow, and as the rock was relatively soft, friable, and damp, the amount of dust was not excessive; but by the year 1892 extensive deep-level mining was being done with an increasing use of drilling machines. In 1899 100 mines were working, employing 12,000 whites and 100,000 coloured persons. Before the Boer War very few people suspected that the mine dust was causing any injury to health. The first warning was given by the Government mining engineer of the Transvaal Mines Department in 1902, when in his report he introduced the subject of the health of the workmen and mentioned miners' phthisis for the first time. He stated that of 1377 machine men employed before the Boer War, 225 were known to have died between October, 1899, and January, 1902. The attention of the Government was arrested by these facts, and in December, 1902, the first Transvaal Miners' Phthisis Commission was appointed by Lord Milner, to inquire into the incidence of "the disease commonly known as miners' phthisis."

Regulations were made for improving the ventilation of the mines, and these were supplemented from time to time by notices. In 1907 the Mining Regulations Commission was appointed to revise and suggest amendments to the Regulations, and a new code was issued in 1911. In the latter year compensation for miners' phthisis was introduced for the first time, in the Miners' Phthisis Allowances Act, to provide temporary relief to necessitous cases pending more extensive legislation. Payment of compensation was made by the last employers who, however, could recover half the amount from the Government and a part of the remainder from a previous employer. In 1912 an Act was passed which laid down a financial basis on a modified insurance method. The benefits were financed by two funds—the Miners' Phthisis Compensation Fund and the Miners' Phthisis Insurance Fund. The former provided benefits for the first 2 years from a fund which consisted mainly of quarterly levies on the "scheduled" mines, and a contribution from the Government to make up any deficit, up to a sum of £100,000. ("Scheduled" mines were those wherein the mineral dust produced by mining operations was, in the opinion of the Minister, of such a nature as to cause silicosis.) The insurance fund was for cases applying for benefit after August 1st, 1914. It was financed by contributions from the mines and from the miners, based on wages; the mines contribution varying from 2½ per cent. to 5 per cent., the miners' contribution being 2½ per cent. The main reason for requiring workers to contribute, apparently, was to secure their coöperation in preventive measures. An amending Act was passed in 1914, extending the provisions for compensation to mine crusher-house workers as well as miners and, in certain circumstances, to native labourers.

An important Act passed in 1916 gave effect to the recommendations of a Select Committee appointed in 1915. "Miners' phthisis" and "silicosis" were now regarded as synonymous terms, and a central medical bureau was established for dealing with all medical questions. The Act prescribed periodical medical examinations, at intervals of six months, of white miners employed underground, and suspension from work in the mines of any person found to have tuberculosis of the lungs.

A LANDMARK

The Miners' Phthisis Act of 1919 repealed all previous Acts. It abolished workers' contributions to the compensation fund and introduced differential

rates of levy. The amount to be levied on an employer was assessed: (1) as to 45 per cent. on the amount of earnings of underground workers; (2) as to 35 per cent. on the silicosis rate of the mine; and (3) as to 20 per cent. on the assessment for income tax. The Act defined silicosis in three stages—ante-primary, primary and secondary, and tuberculosis in two categories, i.e., open, as with T.B. in the sputum, or closed, but with seriously impaired working capacity.

The Miners' Phthisis Board appointed by the Government and consisting of a chairman and from three to six members with special knowledge or experience, had extensive powers and duties of control and administration. The Board determined the amount of levy, granted benefits, reviewed awards periodically, and reported annually to Parliament. The medical bureau was appointed by the Minister of Mines and paid by the Government. Their duties included the conduct, direction, or control of all medical examinations required by the Act, including initial, periodical, and post-mortem examinations. Any miner could appeal against the result of a medical examination, in which case he was examined by three members of the bureau, and their decision was final.

In 1925 a consolidating and amending Act was introduced, which is the present Act. It provides a right of appeal by a miner or his dependants from a decision of the bureau to the Medical Board of Appeal, consisting of three medical practitioners with special knowledge of respiratory diseases, whose decision is final. The Miners' Phthisis Amendment Act of 1934 introduces certain important changes to the consolidating Act of 1925. It follows the lines of certain provisions in the British legislation and amongst other things it provides that, in order to have a valid claim for benefits, a miner (1) must have worked underground in "scheduled" mines for a period amounting in the aggregate to 5 years; (2) must have worked for some portion of that period subsequent to August 1st, 1908; and (3) must submit a claim for benefits within 5 years from the date on which he last worked underground. These conditions do not apply to certain workers who have been resident in South Africa since the cessation of work in "scheduled" mines, or who have not worked in any occupation (other than a "scheduled" mine) which, in the opinion of the Board, is likely to have caused silicosis or aggravated the existing silicosis.

History of Legislation in this Country

If a brief outline of the legislation for compensation for silicosis in this country be studied, it will be seen that it has much in common with South African legislation. The two countries have adapted the same principles each to its own conditions, and have borrowed something from each other in the process.

The British Committee on Compensation for Industrial Diseases, 1906, explored the possibility of extending the Act to certain diseases of the respiratory system, including pulmonary fibrosis, and although they found that fibroid phthisis was a specific and sufficiently distinguishable trade disease, they found serious difficulties in the way of recommending its addition to the Schedule. These difficulties were: (1) the disease developed slowly and it would be troublesome to apportion liability amongst employers for an affected workman who had changed his employment; (2) the diagnosis from other respiratory affections was not easy; and (3) owing to the prolonged initial stage of the disease there would be a risk of some employers discharging workmen who developed symptoms. For these reasons the committee considered that it would be the more prudent course to keep in abeyance the question of scheduling the disease under the Act of 1906, but thought that it might be possible to devise special trade insurance schemes which would get over the difficulties. In 1911 the South African Miners' Phthisis Commission, after examining these findings, came to the conclusion that the difficulties were not so great in South Africa, where the disease developed more quickly, where white labour was scarce, and where there was a single industry in a limited area. Accordingly, legislation for compensation for silicosis was introduced in South Africa in 1912, seven years before it became operative in Britain.

Meantime advances were being made in diagnosis, and in 1917, in view of the continued occurrence of numerous cases of the disease in ganister mines, the Home Secretary decided that a special scheme of compensation should be worked out for the refractories industry, which consists of a special trade group engaged in getting and manipulating ganister and other highly siliceous materials for the manufacture of silica bricks and other articles used in the construction of furnaces. After negotiations with the employers and workers a scheme was agreed upon, and in order to give it effect the Workmen's Compensation (Silicosis) Act was passed in 1918. The Act enabled the Secretary of State to make schemes "for the payment of compensation by the employers of workmen in any specified industry or process or group of industries or processes involving exposure to silica dust" who were certified to have suffered death or total disablement from silicosis or silicosis accompanied by tuberculosis, or by reason of these diseases were suspended from employment. The Act provided for the establishment of a general compensation fund to which all employers in the industry were required to subscribe, and out of which all claims for compensation and all expenses should be paid. The liability was borne by the industry as a whole and not by individual employers; settlement of claims was by committees representative of employers and workmen, with an independent chairman; and all medical examinations were made by specially appointed medical officers.

A MEDICAL BOARD OF WHOLE-TIME OFFICERS

The Departmental Committee on Compensation for Silicosis dealing with the Refractories Industries (Silicosis) Scheme, 1919, examined the working of the scheme over the first four years during which it had been in force, and they made certain important recommendations. The medical officers appointed at the commencement of the scheme were generally the tuberculosis officers for the district in which the works were situated, with power to refer difficult cases to advisory committees or referees. (In South Africa, too, medical examinations were first carried out by a panel of local medical practitioners.) The committee recommended the establishment of a medical board of whole-time officers to make all medical examinations, except certain initial examinations, and to give all medical certificates under the scheme. Initial examinations were to be made of all persons entering the industry and periodical examinations of all workers at specified intervals. Persons found to be suffering from tuberculosis of the lungs were excluded from the industry. Compensation was not payable on account of tuberculosis unless it was accompanied by silicosis. (Compensation for tuberculosis alone was paid in South Africa on the ground of loss of employment resulting from suspension, through the desire of the industry to remove sources of infection from the mines.) The

recommendations of the committee were adopted in August, 1924, in an amendment to the Act of 1918, and a medical board of two whole-time officers with special experience of respiratory diseases was appointed, following the lines of the Miners' Phthisis Medical Bureau which was set up in South Africa in 1916. The Act of 1924 was replaced by Section 47 of the Workmen's Compensation Act 1925. A scheme was made in 1929 for the sandstone industry on similar lines to the Refractories Industries Scheme of 1925, providing for all medical examinations to be made and all certificates to be given by the Medical Board. In addition schemes were made for the metal grinding industries in 1927 and for a large number of industries and processes, classed as the Various Industries, in 1928. The machinery under these schemes was that applicable under the Workmen's Compensation Act to diseases scheduled under the Act—namely, examination and certification by certifying factory surgeons. The Departmental Committee on Medical Arrangements for the Diagnosis of Silicosis recommended, in 1929, that all medical examinations should be made by the Medical Board, and this was enacted in 1931 by a new scheme for medical arrangements which applied to existing schemes and to a new scheme for the asbestos industry. To carry out the necessary work the medical board was increased to nine members.

Compensation in cases where death or disablement is caused by silicosis or asbestosis, or either of these diseases accompanied by tuberculosis, contracted during employment is now payable in all industries where a serious risk of the disease is known to exist. The number of new cases occurring year by year has increased during the last five years, in spite of an improvement in the hygienic conditions of work, owing to the extension of the Acts to more industries. In 1930 there were 250 new disablement cases and 90 deaths; in 1934 the corresponding figures were 415 and 138. These cases were spread over all the industries and processes to which the Acts apply. Research is proceeding under the direction of a committee appointed by the Medical Research Council, and in coöperation with industrial and scientific bodies with a view to extending the knowledge and understanding of pulmonary diseases due to the inhalation of dusts. There is, moreover, a coördination between groups working in different parts of the Empire and in other countries towards this common end.

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

THE SUMMER VACATION

Prof. T. K. Monro gave an address last week to the students of St. Mungo's College, Glasgow, at the close of the winter session. He said that, in spite of the progress made in the prevention, diagnosis, and treatment of disease by public health authorities and laboratory workers, the general practitioner remains the first line of defence against disease, and it is essential that his training should be as thorough as possible. He referred to the long summer vacation of about three months during which little work is done by the students in Scotland. There is a feeling that this is unnecessarily lengthy and that before long courses of clinical instruction will be organised during this period. While this development seems both likely and desirable, it is noteworthy that the present system of intensive clinical instruction that is carried out in the Scottish teaching hospitals throws considerable strain during the term on the clinical teachers. Further, these teachers have, during vacation, not only to take part in post-graduate courses of instruction but also to do extra work while their colleagues are on holiday.

PARIS

(FROM OUR OWN CORRESPONDENT)

HOW SHOULD DOCTORS TREAT EACH OTHER?

THE perennial problem of payment for services rendered by a doctor to his colleague and family has lately been revived by an exchange of opinions on this subject in the medical press. According to Article 41 of the Code de Déontologie, a doctor must not charge any fee to a colleague or his dependents, or to a medical student, and special terms may be allowed members of allied professions. This ruling is simple enough in theory. But in practice neither the doctor who gives nor he who receives free treatment seems to be very happy about it. Several alternatives have recently been put forward. One is that the recipient of free treatment should pay the giver an appropriate fee to be earmarked for a third party, such as some charitable institution for the widows and orphans of doctors, but it is doubtful if this triangular arrangement would please anyone except the widows and orphans. Another suggestion is that a doctor should charge his colleague only 30–50 per cent. of his ordinary fee. A third way out of the difficulty would be for doctors and their families to insure themselves against the costs of treatment. The doctor treating them would then be paid by the insurance society, and neither he nor his patient would be out of pocket. This solution seems to be quite the most satisfactory in theory; and in certain parts of France it has also proved satisfactory in practice. In the course of the above-mentioned correspondence, a well-known surgeon asks for a definition of the term "a doctor's family." To give point to his request, he tells how a patient said to him before she paid his fee: "You forget, Doctor, that I am the cousin of Dr. X." Dr. Paul Boudin, whose knowledge of the ethical and legal problems of French medicine must be unique or nearly so, draws attention to the change which has come over the scenes since the above-mentioned Article 41 was first drafted. In the interval, medical examinations have become highly specialised and tedious, and treatment has become prolonged and varied. Would it not, therefore, he suggests, be well if Article 41 were to be remodelled to allow of fees being reduced by 50 per cent. for those who formerly would have received examination and treatment for nothing?

INTRAVENOUS ANÆSTHESIA WITH SODIUM EVIPAN

At the naval hospital of Sainte-Anne, which is under the direction of Prof. P. Solcard, encouraging observations have been made of late on sodium evipan as a general anæsthetic administered by intravenous injection. Dr. Pervés and Dr. Badelon have given an account of their experiences in 48 cases, and though they admit that the ideal anæsthetic is still to be found and that there is little chance of ever finding it, sodium evipan given by intravenous injection constitutes in their opinion a definite advance in this field by virtue of its many good qualities. Among them may be mentioned the speed

with which general anæsthesia can thus be induced, and this is by no means a point to be neglected in the preparations for the next war when surgeons and anæsthetists can well count on being rushed. One of the chief objections to intravenous anæsthesia with sodium evipan is the frequency with which it induces albuminuria. Although the 48 patients operated on were young and healthy, as many as 14 developed albuminuria which in 4 cases was considerable. Renal disease, even if it dates far back, seems therefore to be a contra-indication to the use of this anæsthetic. It should not be used on a person about whose antecedents little is known. It is also not suitable in private practice as the violent excitement it may sometimes provoke would give much more trouble at home than in a hospital. The contra-indications also include advanced age, peritonitis, intestinal obstruction, septicæmia, severe hæmorrhage, cachexia, and hepatic insufficiency. On the other hand, sodium evipan is admirable for the anxious, the pusillanimous, the bronchitic, the tuberculous, and patients requiring operations on the face, neck, and thorax.

BUDAPEST

(FROM OUR OWN CORRESPONDENT)

HUNGARIAN ANTHROPOLOGY

AT the parterre of the Vienna Natural History Museum the results of the Hungarian anthropological excavations are exhibited. The exhibition was arranged by Prof. Lajos Bartucz. At the opening ceremony Prof. Lebzelter, director of the museum, said that the Hungarian soil is particularly good for the preservation of ancient bones. This is the main reason for the fact that in Hungary anthropology is very advanced, but to this must also be added the exemplary organisation of the Hungarian National Museum, which renders possible a complete control of excavations. In Austria, for instance, anything discovered becomes the property of the local museum; hence the material is wholly scattered and comparative research is almost entirely lacking. Prof. Bartucz has organised the Hungarian findings systematically and competently, and he is able to supply 2000 skeletons with certain dates. The Hungarian lowland has been not only part of the route of the ancient great migrations but also a stopping place and a refuge. The Hungarian grave excavations in connexion with this race investigation work has had very interesting results. Discoveries in a Hungarian cave, now called the Mussolini cave, prove that Neanderthal man also lived in Hungary. In the Early Stone Age the country was inhabited by a dolichocephalic people, but even this was not an entirely pure race. In the Bronze Age (2000–1000 B.C.) the long skull gradually became more and more brachycephalic. From the Iron Age only very few skeletons and skulls are left, because at this time cremation became the vogue. From about 1000 B.C. up to the time of the Romans 'western' influences became more and more important, Germans and Celts mingled with the aborigines, stamping the race with their characteristics. From the skulls it is established that in the Hungarians the German and western racial types appeared much earlier than the marks of Turkish-Tartar influences. The Huns were also connected with the Magyar race, but findings are very few and even these are badly dated. The quality of the Hungarian soil is such that while bones are well preserved, the jewels, clothes, and arms buried with the bodies very easily decay. It thus favours racial but not ethnological research. Prof. Lebzelter said that there is no pure Magyar race. It is in fact very mixed, and characters of many peoples may be found, but these when assembled in the race have produced a specific Hungarian type, just as in water oxygen and hydrogen do not retain their original properties. From the racial point of view, he concluded, the Austrians stand nearer to the Magyars than to the Germans.

INFLUENZA EXPERIMENTS

The great group of buildings of the National Public Health Institute here have expanded still further, for the Rockefeller Foundation have erected an influenza research institute, under the management of Dr. Richard Taylor, delegated from England by the Rockefeller Institute to Budapest, to carry on the researches similar to those in Great Britain and in the United States.

Dr. Taylor's task is to try to discover an adequate protective method for the countries of Central Europe, in case a great pan-epidemic like that of 1918 should return. The Budapest influenza research institute works with quite different methods than was the rule, in general, against this common scourge of mankind. He carries out his experiments on ferrets, but in Budapest experiments with protective inoculations are being made already in human beings. It is still too early to speak about the results, but of 154 Budapest nurses who were given protective serum not one has contracted influenza. Dr. Taylor does not attribute any special importance to this, since this year the capital has not been visited by any such severe influenza epidemic as, for instance, that in England. But it is a fact that the experimental animals are certainly protected by the inoculations for three to four months. Immunity then gradually diminishes, but against slight infections it is still effective for several months. From this Dr. Taylor concludes that it may be possible to inoculate everybody at the approach of an influenza epidemic or, later on, even before each winter, which will protect them throughout the whole season. On being asked about the lethal effect of ultra-violet light as suggested by Brown and Wells in America, Dr. Taylor says that he is sure that quartz light is able to kill the influenza virus, but whole cities cannot be protected in this way, as they can by an inoculation campaign.

THE DEATH OF PROF. DOLLINGER

One of the most prominent figures of the University of Budapest died last week in his 88th year. In spite of his advanced age Prof. Julius Dollinger was active almost up to his death. He was an indefatigable worker, and as professor of operative surgery and director of the First Surgical Clinic of the University he has left behind a gap that will not easily be filled. During the late war as surgeon-general he organised the field surgery and erected the first permanent surgical hospital for war invalids. He wrote a manual of surgery which has also been translated into German. In medical public affairs he was very active, being at various times president of the Hungarian Surgical Society, the Royal Medical Society, and the National Medical Association.

MINERS' GIFT TO BOLTON INFIRMARY.—A new casualty ward has been opened at this hospital. It was formerly the out-patient department, and the cost of its extension and equipment has been provided by the miners' welfare committee.

CORRESPONDENCE

ON THE TAKING OF CHILDREN'S TEMPERATURES

To the Editor of THE LANCET

SIR,—Dr. Paterson's letter in your last issue begins with the very reasonable statement that there are three sites at which the infant's temperature can be taken—namely, the mouth, the axilla (or groin), and the rectum. But with the clinical observations that follow it is not easy to agree. The advantage of the rectal route is that an accurate reading is obtained in one minute, compared with a doubtful reading obtained after even five minutes in the axilla. I say doubtful because, unless a baby is very feeble or moribund, it is something of a feat to keep a thermometer closely clasped in the axilla or groin for five minutes. In a lively or restless baby the resulting reading is merely room temperature, modified to an extent which is determined largely by the skill and conscientiousness of the observer—deplorably variable factors.

Dr. Paterson says that diarrhœa can be provoked by regularly taking the rectal temperature, merely from the mechanical action of a slim thermometer. Is this a clinical impression or the result of observing a series of cases and controls? My own clinical impression is that only a baby who is already giving the matter of passing a motion his favourable consideration will be affected by the insertion of a thermometer; in other circumstances he will scorn so mild a stimulus. Moreover, in those cases where an effective stimulus is regularly given (with a soap stick or rubber catheter) the end-result is rather to produce constipation than diarrhœa. As to taking the mouth temperature, this is usually practicable in children over three. If a stub-ended thermometer is used, if it is held while in position, and if any warning to the child about biting it is omitted, the danger of breakage is negligible or non-existent.

Variation in temperature is the only manifestation of disease that we can accurately measure at the infant's bedside. There seems to be no good reason for introducing an element of doubt into what should be an exact method of investigation.

I am, Sir, yours faithfully,

C. E. DONALDSON.

Dulwich Village, S.E., March 20th.

ERGOTAMINE TARTRATE IN MIGRAINE

To the Editor of THE LANCET

SIR,—From a year's personal experience I feel I can say that we now have a drug of outstanding value in migraine. For over twenty years I had been subject to intermittent headaches which occurred once or twice a week, almost always on awakening. None of the usual analgesics gave any relief, and exhaustive attempts to discover a cause proved unavailing. No septic foci remained; errors of refraction had been corrected, and no biliary or intestinal cause could be found. All forms of treatment tried, including both specific and non-specific desensitisation, had failed. At the end of September, 1935, my attention was drawn to Bellergal (Sandoz), a preparation of the total alkaloids of belladonna with ergotamine tartrate and phenobarbitone, which was said to have a regulating action on the autonomic nervous system, and I began by taking one tablet three times a day. The results were better than any I had had during the previous three years. The headaches were less frequent and less severe, and whereas they had hitherto lasted until the evening they usually now passed off between 10 A.M. and 11 A.M. Because, however, many authors have considered migraine attacks to be associated with disturbance of the sympathetic nervous system (acting through the neurovascular system of the brain) and because ergotamine tartrate, one of the components of bellergal, inhibits the sympathetic, I was induced to think that treatment with Femergin (ergotamine tartrate) might be more specifically indicated in my case. Accordingly from Oct. 24th, 1935, I took two tablets of femergin by mouth each evening and one tablet each morning; but it proved relatively ineffective and so did Bellafoline, an inhibitor of the parasympathetic, which is another component of bellergal; indeed, I think the bellafoline aggravated the trouble.

At this point I decided to test the effect of femergin by injection. I injected 0·75 c.cm. (0·375 mg. ergotamine tartrate) intramuscularly and rested a short while; within 45 minutes the headache was greatly improved, and in 1½ hours to my astonishment it had completely disappeared. Within about a month I had repeated the femergin injection on each of the five occasions that an obstinate headache developed and every time the headache cleared up in 1¼–1¾ hours. It then occurred to me that it was possible that the femergin injections might be successfully used prophylactically. For this purpose my plan has been to inject 0·5 c.cm. (a small dose) subcutaneously at bedtime on the eve of what I think may prove to be a very busy and strenuous day, and since I have done so, many months ago, I have always been able to procure absolute immunity for at least 24 hours, no matter how worrying a time I may have had. Throughout the whole period that I have been taking ergotamine tartrate, either alone or as a component of bellergal, I have never experienced any unpleasant secondary effect other than a very occasional slight malaise after a femergin injection which, however, readily passed off.

The relative efficacy of ergotamine tartrate by mouth and by injection seems to require further investigation. My early experiences with femergin orally had proved disappointing, but as this was somewhat puzzling in view of the astonishingly successful results achieved with injections I have latterly been making further trials with oral treatment and have obtained much improved results with larger doses. M. E. O'Sullivan (*J. Amer. med. Ass.* 1936, **107**, 1208) records complete relief of migraine attacks in 31 out of 45 patients given ergotamine tartrate by mouth, and although the proportion of successes (69 per cent.) is not as high as she obtained with injections (92 per cent.), oral treatment is clearly worth consideration, especially when it is inconvenient to give injections. Another method of administration that I have employed is the sublingual, which I have not seen mentioned elsewhere, though Von Storch approaches it in his suggestion of application of the liquid to the nasal mucous membrane. In my experience sublingual administration is far superior to ingestion, and is indeed second only to injection; I find that two tablets administered in this way are equal to five or six orally. Prof. J. H. Burn has shown that in the cat only 30 per cent. of ingested ergotamine is absorbed, a fact that supports my experience of sublingual administration, and I believe that this method will ultimately supersede the oral route.

From the outset of treatment I was anxious first about the possibility of acquiring tolerance to ergotamine tartrate, and secondly about the side-effects of ergot—especially the former than the latter. After several months' trial I ceased to worry; but I later had the good fortune of an introduction to Prof. Rothlin of Basle, well known for his exhaustive research work into imbalance of the autonomic nervous system, and the effect of various drugs (including ergot) on imbalance, so I put the question to him. His reply was that the risk of habituation is negligible and he cited the case of a doctor well known to him, a sufferer from migraine, who for over eighteen months had nightly given herself an injection of 1 c.cm. of femergin (0·5 mg. of ergotamine tartrate) without any sign of habituation or any side-effects. He pointed out that, of course, the ordinary case would not require either so large a dose or anything like so frequent administration, and that consequently the risk of secondary effects was very slight, and that in any case intelligent supervision and temporary cessation of treatment would completely prevent them. This coincides with my own experience of over a year's more or less regular administration in which I never felt the slightest ill effect; indeed, on the contrary, for some time after an injection I have often experienced a distinct sense of well-being.

Except for the very small proportion of cases in which a definite cause can be discovered and removed, the cure of migraine is as far distant as ever. But, for the vast majority of patients who have to make the best of their affliction, we now have a drug that will relieve an attack, abort an attack, and prevent an attack. The darkened room and the narcotic sedative are things of the past.

I am, Sir, yours faithfully,

T. W. GORDON KELLY.

Desford, Leicestershire, March 5th.

HORMONE TREATMENT OF UNDESCENDED TESTIS

To the Editor of THE LANCET

SIR,—Having just returned from abroad, this is the first opportunity I have had to reply to various points raised in letters commenting on my recent article in THE LANCET. The points I wish to make are as follows:—

1. A considerable proportion of cases of retained testis will descend spontaneously.

2. Spontaneous descent occurs as development of the genitalia increases.

3. Administration of gonadotropic hormones produces rapidly that increase in development which normally occurs gradually. In this way descent of the retained testis may be obtained.

4. Where genital development is considerable and a testis is undescended, it is probable that retention is due to a mechanical cause. This is the position in the majority of unilateral undescended testicles and in some bilateral cases.

5. It is probable that successes with this treatment are obtained almost entirely in cases where spontaneous descent would ultimately occur.

6. There is some experimental evidence that late testicular atrophy may follow the use of gonadotropic hormones. The treatment has not been in use sufficiently long for this possibility to be excluded where patients are concerned.

7. At present I think it is justifiable to use this method in bilateral cases with subnormal genital development.

I agree with Dr. Pearse Williams that the size of the genitalia varies considerably up to full puberty, but I consider that hormone therapy should only be employed where the genitalia are small in bilateral cases. I should like to know more about the selection of cases employed by Drs. Bishop and Hampson; their results (23 successes in 29 cases) suggest to me that they may not have excluded cases of retraction of the testis. I am glad to have an opportunity of stating these points more clearly and trust that they may discourage the view held in some quarters that every case of imperfect descent of the testis is suitable for hormone therapy.

I am, Sir, yours faithfully,

T. W. MIMPRISS

St. Thomas's Hospital, S.E., March 17th.

ACCIDENT AND DIABETES MELLITUS

To the Editor of THE LANCET

SIR,—It is generally accepted that the reason why accidents cause an exacerbation of diabetes mellitus is that bruising of tissues leads to the production of a toxin which upsets the metabolism of diabetic subjects, just as they are upset by the toxins elaborated by some bacteria and viruses. The object of this letter is to ask the assistance of the medical profession to answer the question whether accident can initiate diabetes mellitus in the same way as it is asserted that trauma can cause malignant disease or local tuberculosis. A number of diabetic patients date the onset of their disease from an accident, but in only a small proportion of cases can previous glycosuria be excluded. I should be very grateful to those who send me brief notes of patients who were free from glycosuria and the symptoms of diabetes mellitus before an accident and have developed glycosuria, with or without symptoms, following an accident however trivial. The records of the London Hospital furnish some cases but not sufficient to permit one to make a dogmatic statement.

I am, Sir, yours faithfully,

London Hospital, E., March 20th. O. LEYTON.

DOCTORS' NOTEBOOKS OF LONG AGO

To the Editor of THE LANCET

SIR,—Your interesting annotation (p. 702) on an old doctor's notebook tempts me to go one better. Here is the first item, dated March ye 26th, 1688, in the notebook of a doctor at Cranbrook, Kent:—

Mr. Asten for the Itch	
A pot of oyntment lbss	0 : 2 : 6
for his arme aftar leting blud: A Cattaplm	0 : 2 : 0
oyntment for ye itch	0 : 2 : 0
Pill Ext Rudii dr j	0 : 2 : 0
more oyntment	0 : 1 : 6
more oyntment	0 : 0 : 9
	0 : 10 : 9

Perhaps it was not "ye itch" after all or the ointment was not of the right sort since more than two pounds of it could not effect a cure.

At the other end of the book the barber's side of the practice was entered. Trimming was secured for a charge of from 1*s.* 6*d.* to 2*s.* 6*d.* a quarter. There is no mention of the primitive urinalysis to which your annotation refers. But we have here amongst our local records in the public library an interesting letter from one Abraham Heasman of Ticehurst, Sussex, who attained, I fancy, something more than local fame as a water doctor. It is undated but on

the back is a receipt for rates dated in 1729. The letter is addressed to a Mrs. Bellingham who lived near Sevenoaks, and it seems that Abraham was a ready rather than an accurate writer—"I find by your waters you have boath of you and your son have fevers which your son hathe the jarndice with it verie much, and lies in his head verie much and I think a kinde of surfit with it." To spot the jaundice was not perhaps very clever but how he knew that it lay in the patient's head is difficult to surmise. Nor was the water doctor any too sure, for he writes "it was grate pittie you did not send a written noate of boath your conditions." However, treatment was duly prescribed in the simple words "I have sent each of you a vomit and you be to take them boath." Detailed instructions follow—"and everie time it works have 2 gallons of broath apiece radie . . . and take it all if you can." There is much more of interest in this letter which has the very wise postscript "if you should have ocation to send again pray send this noate and then I shall be better knone what you have had of me."

A country's doctor notebook commencing in 1688 is doubtless an unusual item. Can anyone cap it with an earlier book? There ought to be several earlier remaining.

I am, Sir, yours faithfully,

Sevenoaks, Kent, March 19th. GORDON WARD.

HÆMORRHAGIC DISEASE OF THE NEW-BORN

To the Editor of THE LANCET

SIR,—I have read with interest and profit Dr. Norman B. Capon's article in your issue of Feb. 20th. It gives me the opportunity to mention a case that came to my care last year at the Colonial Hospital here, in which bleeding came from the eyes as well as from the umbilicus.

The history given by the midwife who attended the birth of the child was that blood had escaped continuously from both conjunctival sacs a few hours after birth, accompanied by umbilical hæmorrhage. The midwife brought the baby to hospital about 20 hours after its birth, and I was called to see it 11 hours afterwards on account of the continued hæmorrhage from the eyes. The baby appeared quite healthy in every way, and the history of the family was exceedingly good for both parents and several brothers and sisters. I tried normal horse-serum as an emergency measure, and it had a beneficial effect for a short time both in its local action and by intramuscular injection. A blood transfusion was ordered, but the baby died 34 hours after admission.

Bleeding from the conjunctiva is not mentioned in Dr. Capon's paper nor can I find any reference to it in the literature at my disposal here. I have therefore written of this case because of the rarity of the source of bleeding and the fact that it was regarded as one for the ophthalmic department. I understand that cases of this disease with bleeding from the rectum and genital passages are seen from time to time at the colonial hospitals in Trinidad.

I am, Sir, yours faithfully,

VIVIAN M. MÉTIVIER.

Port of Spain, Trinidad, B.W.I., March 10th.

TURMERIC IN BILIARY DISEASES

To the Editor of THE LANCET

SIR,—Dr. Oppenheimer in his interesting paper in your issue of March 13th refers to the use of turmeric in India for many centuries in the treatment of jaundice. In "The Magic Art," Frazer has collected some descriptions of the methods used there. They are not a bit like Dr. Oppenheimer's. For instance, according to one technique the drug is applied externally from head to foot, and three yellow birds—a parrot, a thrush, and a yellow wagtail—are tied by yellow string to the patient's bed. In due course the mess of turmeric is washed off with water and the jaundice should then leave the sick man and pass to the birds. The virtue of the turmeric of course rests in its curry powder yellow colour, and it is interesting to note in this connexion that Dr. Oppenheimer has found that the value of his preparation depends upon the yellow pigment curcumin only and not on any other constituent of the extracts from the herb.

Turmeric is not the only yellow drug that has been used to treat the yellow jaundice. Saffron, podophyllum, and dandelion are old folk medicines. It is curious to see a remedy for long ages depending on the doctrine of signatures for its justification now supported by modern methods of investigation; but it has happened before, for the debt of therapeutics to folk medicine is considerable, and your contributor's paper encourages the thought that further studies, in the modern fashion, of some of the old botanical remedies would be rewarded with results similar to his own. I am, Sir, yours faithfully,

Oxford, March 20th. EDWARD GALLOP.

CHEST LEADS IN ELECTROCARDIOGRAPHY

To the Editor of THE LANCET

SIR,—All will agree with Dr. Hill that a standardised method of obtaining the chest lead in clinical electrocardiography is urgently needed. To my mind there are very solid reasons for discarding the original American technique in favour of reproducing the chest lead curve in the manner advocated by Drs. Willcox and Lovibond in your issue of Feb. 27th, and Dr. Hill's arguments do not convince me to the contrary.

Two quite separate points have to be decided. First, the position of the electrodes on the body, and secondly, the manner of joining them to the galvanometer which determines the polarity. Experimental direct leads purpose to record the variations in potential at a particular point on the heart, and this involves the use of an exploring or dominant electrode, applied directly to the heart, and an indifferent electrode, applied at some point distant from the heart. Though clinical chest leads are not strictly comparable with direct leads, the same principle should be followed. Those who have used chest leads in clinical work will probably agree that the dominant electrode is best placed on or near the apex-beat, and the indifferent electrode on the right arm or left leg, either of which is preferable to the back, both on theoretical grounds and on grounds of expediency.

The real difficulty arises over the question of polarity. Drs. Willcox and Lovibond advocate a reversal of the polarity employed in the original American curves, so that the chest lead is, as nearly as possible, comparable with limb leads. Anyone who has had much experience of chest leads in clinical work will readily appreciate the great convenience of reading the fourth lead *right way up*, instead of upside down as necessitated by the American method.

The custom in experimental work has been to so arrange the polarity in direct leads that relative negativity of the exploring electrode is represented in the finished curve as a deflection above the base line. No less an authority on experimental electrocardiography than Dr. F. N. Wilson comments on this custom as follows: "This practice is incon-

sistent with the well-established conventions of coördinate geometry which demand that positive values of the variable be plotted above the time-axis and negative values below it" ("Diseases of the Coronary Arteries and Cardiac Pain," New York, 1936). Again, Drs. Kossmann and Johnston (*Amer. Heart J.* 1935, **10**, 925), discussing the same subject, write as follows: "the advantages of reversing the polarity of all direct, semidirect and præcordial leads are, however, so great that we believe this policy will eventually be adopted by the majority."

As far as experimental curves are concerned, confusion would be avoided if all deflections were clearly designated by plus or minus signs to correspond with positivity or negativity respectively of the exploring electrode, as suggested by Wilson. In clinical work I hope that British cardiologists will set an example in following the dictates of common sense, by reproducing the chest lead *right way up* in terms of accepted clinical standards. They may feel fortified in so doing by the knowledge that they are also plotting positive values above the base line in accordance with scientific custom.

I am, Sir, yours faithfully,

D. EVAN BEDFORD.

Queen Anne-street, W., March 22nd.

THE SERVICES

ROYAL NAVAL MEDICAL SERVICE

A NUMBER of vacancies exist for Medical Officers in the Royal Navy and applications are invited for entry in July, 1937. Candidates must not be above the age of 28 years and must be registered under the Medical Acts. No examination in professional subjects will be held, but candidates will be required to attend for interview by a Selection Board. Applications for entry from intending candidates must be received not later than May 31st, 1937.

Mr. J. M. Harrison, of Sevenoaks, Kent, has been appointed Admiralty Surgeon and Agent at Sevenoaks.

Surg. Comdrs. W. G. C. Fitzpatrick to *Pembroke* for R.N.B.; G. G. Newman to *Resolution*; W. A. Jolliffe to *Cormorant* for Gibraltar Dockyard; G. Kirker to *Emerald* (on recommg.); A. de B. Joyce to *Excellent*; J. C. Souter to *St. Angelo* for R.N. Hosp., Malta; S. G. Weldon to *Victory* for R.N. Hosp., Haslar; R. W. Mussen to *Victory* for R.N.B.; and J. R. Brennan to *Drake* for R.N. Hosp., Plymouth.

Surg. Lt.-Comdrs. J. J. Keevil to *Victory* for R.N.B.; J. J. Cusack to *Drake* for R.N.B.; J. W. L. Crosfill to *Drake* for R.N. Hosp., Plymouth; S. J. Savage to *Shoreham*; J. G. Currie to *Terror II*, and for Singapore Naval Base; C. D. D. de Labilliere to *Pembroke* for R.N.B.; M. J. Brosnan to *Royal Sovereign*; and E. H. Rampling to *Drake* for R.N.B. and to *Resource* (on recommg.).

Surg. Lt.-Comdr. (D) L. V. Donegan to *Pembroke* for R.N.B. and to *Resolution*.

Surg. Lts. W. Boyd, F. A. Crosfill, G. C. Denny, R. V. Jones, F. P. Ellis, W. S. Miller, L. R. Norsworthy, B. O'Neill, G. R. Rhodes, P. G. Stainton, T. A. M. Maunsell, and W. H. C. M. Hamilton to R.N.B., Portsmouth; C. P. Collins to *Ganges*; G. S. Thoms to *Faulknor*; M. G. H. Heugh to *Pembroke* for R.N.B.; L. G. Yendoli to *Coventry*; C. J. P. Pearson to *Frobisher*; F. H. Ward to *Victory* and to *Caledonia* (on commg.); and I. C. Macdonald to *Wellington*.

Surg. Rear-Admiral Sir Daniel McNabb, K.B.E., C.B., retd., had been awarded a Greenwich Hospital pension of £100 a year, in the vacancy created by the death of Inspector-General of Hospitals and Fleets J. H. Martin, D.S.O., retd., on Feb. 14th.

ROYAL NAVAL VOLUNTEER RESERVE

Surg. Lt. S. E. Cooke to *Iron Duke*.

Surg. Sub-Lts. P. H. K. Gray, L. Foster, and R. F. B. Bennett promoted to Surg. Lts.

ROYAL ARMY MEDICAL CORPS

Lt. C. J. O'Kelly resigns his short service commission.

REGULAR ARMY RESERVE OF OFFICERS

Maj.-Gen. J. S. Gallie, C.B., C.M.G., D.S.O. (late R.A.M.C.), Maj. M. P. Leahy, and Capt. A. W. Bevis, having attained the age-limit of liability to recall, cease to belong to the Res. of Off.

SUPPLEMENTARY RESERVE OF OFFICERS

D. Thomson to be Lt.

ARMY DENTAL CORPS

Short Service Commissions: Lt. J. A. O'Gorman to be Capt; and W. McGinnes to be Lt. (on prob.).

ROYAL AIR FORCE

Group Capt. A. E. Panter to R.A.F. Station, Cranwell, for duty as Senior Medical Officer and Officer Commanding R.A.F. Hospital, Cranwell.

Wing Comdr. V. R. Smith to Headquarters, R.A.F., Mediterranean, Malta, for duty as Principal Medical Officer.

Flight Lts. R. F. Wynroe to R.A.F. Station, Upper Heyford, and O. S. M. Williams to R.A.F. Station, Upwood.

Flying Offr. E. B. Harvey is promoted to the rank of Flight Lt.

Flying Offrs. E. H. E. Cross to R.A.F. Station, Hornchurch, and J. R. R. Jenkins to R.A.F. Station, Kai Tak, Hong-Kong.

Dental Branch.—Flight Lts. P. M. Margand to R.A.F. Station, Gosport; and M. J. Pigott to R.A.F. Depôt, Uxbridge.

INDIAN MEDICAL SERVICE

Lt.-Col. L. Blake, M.C., retires on account of ill health.

Lt.-Col. A. J. Lee retires.

Indian Medical Department.—Maj. (Sen. Asst. Surg.) J. S. Salt and Lt. (Sen. Asst. Surg.) H. J. C. Flanagan retire.

DEATHS IN THE SERVICES

Colonel HARRY ARTHUR LEONARD HOWELL, C.M.G., late R.A.M.C., who died on Feb. 26th at Lincoln in his 70th year, was the son of Major R. Howell of Sandgate. He was educated at Manchester School and Queen's College, Cork, qualified L.R.C.P. Edin. in 1892, and joined the Army in 1895, retiring in 1921 with the rank of colonel. He served with the Tirah Expedition (1897–98), and on plague duty (1899–1900) when he was highly commended for his work in Bombay. In the European war he was A.D.M.S., 1st Army, Central Force, and as officer in charge of R.A.M.C. records he edited the "Roll of Commissioned Officers in the Medical Service of the British Army," published in 1917 at the University Press, Aberdeen. He was editor of the *Gibraltar Chronicle* from 1907–10, and wrote several biographies which appeared in the *Journal* of the R.A.M.C. In 1901 he won the Parkes memorial gold medal and prize for an essay on the prevalence and prevention of venereal diseases in the Army. He was created C.M.G. in 1919. His leisure time was devoted to historical research and to painting both in oils and water-colour. In 1897 he married Adelaide, the daughter of Edmund Burke Brown, J.P., of Castle Park, Co. Clare.

Colonel PHILIP JAMES LUMSDEN, late I.M.S., who died on Feb. 27th at Fleet, Hants, was eldest son of John James Foote Lumsden, of Aberdeen. He was educated at Aberdeen and Edinburgh, qualified M.B., C.M. Aberd. in 1886, and joined the I.M.S. two years later. At first residency surgeon in the Persian Gulf, he was later agency surgeon in Haraoti and Tonk, Kotah and Jhallawar, Quetta, and medical officer of the 44th Merwara Infantry at Ajmer. From October, 1914, he was on military duty, and he retired in 1920.

Colonel FERBERD RICHARD BUSWELL, C.M.G., late R.A.M.C., who died on March 13th at Kensington, was born at Brixton in 1864 and qualified M.R.C.S. in 1887, taking house appointments at the Middlesex Hospital. In 1893 he entered the Army as surgeon lieutenant, becoming major in 1904, and temp. colonel whilst A.D.M.S. of a division in November 1915. He served in China in 1900 (medal) and during the European war when he was mentioned in dispatches and awarded the C.M.G. in 1917.

OBITUARY

ROBERT GORDON McKERRON, M.D. Aberd.

THE death occurred in Edinburgh suddenly on Sunday last of Dr. Robert McKerron, emeritus professor of midwifery in the University of Aberdeen. He had come to Edinburgh, as was his wont, to see the Calcutta Cup match, but became suddenly ill on the night previous to the match and died thirty-six hours later.

Robert was the eldest son of the late Rev. Robert McKerron, and received his medical training at the University of Aberdeen, where he graduated in arts with honours in 1884, proceeding to the medical degrees of M.B., C.M. in 1888. He was a distinguished student in the university and early after graduation acted as assistant to the professor of physiology. He became later gynæcologist at the Royal Infirmary, Aberdeen, and physician to the Royal Hospital for Sick Children in the city, and was finally appointed regius professor of midwifery. We have received the following brief obituary notice in which his high position in the profession, his success with his students, and his keen interest in sport are set out :—

"Not only Aberdeen and the north east of Scotland but a very large number of medical practitioners throughout the country will mourn the sudden death of Prof. R. G. McKerron in Edinburgh on March 21st, the night previous to the international football match at which he hoped to be present.

"Prof. McKerron could be described as a real enthusiast in all that he did or was interested in, whether it were work or play. He was a keen teacher who was devoted to his students, and they in their turn made of him one of the most popular of all Aberdeen professors. He was an illuminating teacher of midwifery: this he taught in the practical way which he considered would be of the greatest use later to the general practitioner, as he always looked upon his class as potential general practitioners and not, as is sometimes done at present, as embryo specialists. He was an obstetrician of the old school, who had little use for Cæsarean section unless it was absolutely necessary and under his care and deft manipulations this necessity seldom arose, a fact that speaks adequately for his great obstetric acumen and skill. It was a pleasure and an education to see him deal with a difficult occipito-posterior position or a placenta prævia.

"He was equally enthusiastic on games and was in his day a great cricketer. In winter he followed Rugby football most keenly and rarely missed a Saturday match, no matter what kind of day it was; in summer he turned his affection to the Aberdeenshire Cricket Club and was an equally enthusiastic supporter of the game. He rarely missed his weekly golf match, winter or summer, and was a most competent bridge player. No wonder that he was popular with all, both young and old, as he had interests in common with both, and a very large circle of friends will miss him greatly.

"Great sympathy is felt for his widow and for his three daughters and two sons, one of whom is a professor of law in Johannesburg."

BERNARD SCOTT, M.R.C.S. Eng., L.S.A.

Dr. Bernard Scott, whose death was announced on March 12th at the age of 78, was born in Brighton where his father was in practice as a doctor. He went to Guy's Hospital at the age of 16 and qualified from that hospital in 1881. He held appointments at the Helen Bridge Hospital for Hip Diseases and at the West Sussex County Hospital, Brighton, and in the year 1884 went into practice in Bournemouth with his elder brother, Dr. T. Bodley Scott. In 1886 he married Lydia Margaret Whitworth of Windermere. He rapidly acquired a reputation as a surgeon, and in 1892 he became honorary surgeon at the Poole-road Hospital. While following a very busy life as a general practitioner he found time regularly to return to Guy's in order to learn the technique of aseptic surgery which was entirely new since he had qualified, and for many years he spent a fortnight of his summer holiday watching surgery at that hospital. He led an immensely active life and yet never appeared to be in a hurry, and was left quite unruffled by the manifold irritations of the doctor's life. He was both loved and respected by members of his own profession with whom he always worked with complete harmony.

His favourite hobby was dry fly trout fishing, and for many years every summer holiday was spent in this pursuit. It was only last summer after he had succumbed to a severe chill whilst fishing on a bitterly cold day that he decided to give up practice altogether.

He is survived by his wife and nine children, two of whom have followed in his own profession, while another is Elisabeth Scott, the well-known architect.

JOSEPH TREGELLES FOX, M.R.C.S.

Dr. Tregelles Fox was born at Stoke Newington in 1855, the fifth son of Joseph John Fox, surgeon. Like all his brothers he studied at the London Hospital under the constellation which included Hughlings Jackson, Jonathan Hutchinson, Andrew Clark, and Henry Gawen Sutton. He had early interested himself in medical-religious efforts, such as Dr. John Dixon's work for the Jews and Dr. Pennefather's at Mildmay. In 1880 he qualified M.R.C.S. and L.S.A., and went out as a medical missionary under the Friends' Association to Madagascar. Here he remained for seven years, working for two years single-handed in a wide field, including the organisation of a hospital and training selected native students. His large collection of vesical calculi still exists. In 1882 he was joined by the late Dr. William Wilson, also a Friend, who gave him much assistance in establishing a "medical mission academy" and to whom he owed his life when seized with illness on one of their journeys. This beginning of medical teaching in Madagascar was jointly supported by the Friends' and Norwegian Missions and the London Missionary Society. In 1886 Dr. Fox was able to open a systematic course of medical studies, and in the following year his "Lessons in General Anatomy and Physiology, Vol. I" was printed in the Malagasy language at Faravohitra and became the text-book of the school. It is illustrated with more than 100 reproductions of his original drawings, which show his ingenious and uncommon turn of mind. Ten years later, when the French occupied Madagascar, this academy became the Government hospital and medical school. At that time 30 native students had passed through the course and qualifying examination and were doing excellent work all over the island.

He returned to England in weakened health in 1887 and settled at Strathpeffer Spa, where for a number of years he devoted himself to hydrological and climatic studies and the establishment of a

mineral waters hospital. Later, he removed for a further period to Leeds and followed his son to America, practising in various parts of Oregon, maintaining a strong interest in natural waters and making occasional contributions to the *Archives of Medical Hydrology*.

Tregelles Fox was short of stature, an optimist by conviction, full of energy and resource, at times perhaps showing a *nimia diligentia* but never indolence, and he is still remembered by old patients with gratitude and affection. He died at San Diego under the care of his son, Joseph Sanger Fox, on Jan. 4th, 1937.

PERCY LONSDALE McALL, M.B., Ch.B. Edin.

Dr. Percy McAll, who died in Edinburgh on March 8th at the age of 66, served the London Missionary Society for 37 years in China. Born in Leeds in 1870, he was educated at the Bristol Grammar School and St. Olaves, Southwark. From there he went to Cambridge and graduated in arts, proceeding later to Edinburgh and obtaining the degrees of M.B., Ch.B. in 1898. He started immediately upon his missionary labours, sailing the same year for China. He was at first engaged on work in Wuchang and Hankow, and while engaged in appointments at the hospital and medical school at Hankow, began to add the translation of medical text-books to his duties. He thus made an important contribution to the training of Chinese doctors; indeed, he was largely responsible for standardising the medical vocabulary of China. In 1918 he joined the staff of the medical school of Shantung Christian University at Tsinan (now known as Cheeloo), and two years later, in connexion with the translation department of the medical school, he rendered many important works on clinical pathology, bacteriology, and pathology into Chinese. In 1924 a Chinese physician, Dr. C. L. Kao, undertook the heavy task of translating the British Pharmacopœia into Chinese. This work was carried on under the auspices of the British Chamber of Commerce of Shanghai, and the subsequent work of revising the translation was done under the direction of Dr. McAll.

Dr. McAll was twice married. His first wife, formerly Miss Winifred Bateman, whom he married at Hankow in 1899, died at Wuchang less than two years later. In 1905 he married Miss Lilian Mary Joyce, a missionary who was nursing at the Hankow Hospital. Dr. McAll retired in 1935, and he and his wife, who survives him, made their home in Edinburgh. Their son, Dr. Kenneth McAll, is following his father's footsteps, and proceeding to China as a medical missionary of the London Missionary Society.

JOHN LLOYD DAVIES, M.R.C.S. Eng., L.R.C.P. Lond.

Dr. J. Lloyd Davies, whose death occurred on March 16th, was a well-known Newport citizen. The son of the late manager of the Marshfield Iron and Tin Works, he spent some time at Llanelly before entering the medical school of University College Hospital. He took the English double diplomas in 1893, and was then for five years medical officer to the Dowlais Iron Company. He was then appointed medical officer and public vaccinator to the Ludlow union, after which he started in general practice at Newport, where he soon came to hold several public appointments. He took real interest in municipal affairs, and was elected to the town council of Newport in 1902. He was Mayor of the borough at the outbreak of war, and met with great energy the responsibilities that fell upon him; in particular he was active in the reception of Belgian refugees, for which service he received the King Albert medal. He was a J.P. for the county of Monmouthshire, and was elected an alderman of the borough. His career of active practice was marked always by his devotion to public affairs, especially by his connexion with education. He was chairman of the Newport educational committee for more than 20 years, and was the first chairman of the Newport insurance committee, having been the first doctor to be placed on the panel under the Insurance Act. He represented Newport on the board of governors of University College, South Wales, and for his services to his borough was made an honorary freeman. He was 65 years of age at the time of his death.

HENRY CHARLES ROBERTS, M.B. Liverp.

WE owe the following appreciation of the late Dr. Roberts, who died on March 15th, to the personal knowledge of one of his friends and colleagues:—

"The death of Henry Charles Roberts in his forty-fourth year has robbed our little corner of Cheshire, and indeed Merseyside, of one whom to know was to love. He qualified in 1916 and served in Mesopotamia. After practising for a short time in Liverpool he came to Moreton. He was a naturally gifted mechanic, and early became interested in anæsthetics. He designed and made with his own hands a portable gas-oxygen-ether apparatus, a modification of what he thought best in the American Foregger and Heidbrink machines. Latterly he had much improved this, and when the Cunard-White Star liner *Queen Mary* was being equipped his apparatus was installed in her. To those of us, his colleagues, who were willing to learn, he freely and generously gave of his special knowledge, and made clearly plain what others seemed to have kept a mystery, and this with undoubted financial loss to himself.

"As anæsthetist to the Liverpool Dental Hospital, I believe it is true to say that he revolutionised dental anæsthetics there, and his lectures, with cinematograph films of dental anæsthesia, were becoming increasingly sought after. He was skilled in all forms of his art, including evipan, avertin, ethylene, and cyclopropane, and at the time of his death was engaged on simplifying and making more economical the use of the latter. He was an accomplished musician, photographer, and a keen student of nature, delighting especially in his garden, and I shall always picture him coming to my poorly gardened house, his arms filled with flowers. His never-failing cheerfulness, generosity, and unassuming kindliness had meant so much that his unexpected death has caused real grief to his professional colleagues, friends, and patients, and, among these latter the poor, who may have been said to worship him.

"He leaves a widow and one son, to both of whom he was deeply devoted."

W. G. McA.

HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET.—On March 17th the Princess Royal, president of this hospital, laid the foundation-stone of the main block of the new hospital. This is the beginning of the second part of the rebuilding scheme. The first, the new nurses' home, is almost completed. The new block will cost £240,000, and the maximum number of cots in a ward will be 6 instead of 26 as at present. Isolation glass-partitioned cubicles will be attached to each ward, and oxygen will be laid on to every bed.

GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations. Each contributor is responsible for the section for a month; his name can be seen later in the half-yearly index.

BY A ROVER

IV

LOOKING at the germ diseases over which we still have practically no control, they are probably, nearly all of them, the result of infection of the body by a special type of microbe which we call a virus. Filtrable viruses they are sometimes termed, because the infecting agent passes through the finest filter available. This infective material has been proved to contain extremely minute particles: the name "elementary bodies" is given to them. We owe the first description of these particles to a Scot named John Brown Buist, who found them in the calf lymph used for small-pox vaccination and also in material removed from small-pox pustules. After the delay that so often follows original observations like these, a number of other workers have studied these Buist bodies, and have confirmed their presence and importance. British bacteriologists have been amongst the foremost in these researches, and in particular, Dr. Mervyn Gordon and Sir John Ledingham.

There is a lot of evidence for regarding virus bodies as being the cause of influenza, encephalitis lethargica (or sleepy sickness), infantile palsy, mumps, measles, and also (some would add) the common cold.

* * *

The first appearance of that form of inflammation of the brain called encephalitis lethargica is quite uncertain, because in the severe cases of influenza cerebral symptoms have often appeared, causing confusion in diagnosis. But serious outbreaks have occurred in the present generation as well as many sporadic cases. The number of cases in which the brain symptoms appear the fever having been overlooked or absent altogether, is probably still under-estimated. The same applies to influenza nerve symptoms, though these are, of course, less serious. Acute poliomyelitis, better known by its trivial name, infantile palsy, has close affinities with encephalitis. It is a very old disease. There is authentic evidence that it existed in Egyptian days, and it is probable that encephalitis did also.

* * *

What is equally or even more important, there is a growing belief that the mystery of cancer, a disease which equally lacks control in the true sense of the word, may find part of its solution in the discovery of specific virus bodies. That cancer *is* a microbic disease becomes more and more a convincing hypothesis as intensive research into its problems continues. It is not difficult to visualise these minute virus bodies—each one is from five to ten times smaller than the ordinary micrococci, settling like so much dust, inside the very substance of the cells of an organ, successfully colonising there (successfully, that is, from their own point of view) and thoroughly disorganising the cell economy. The life of the cell continues—it is not killed—but it is stimulated (irritated) into that state of chaotic overgrowth which is the very essence of cancer. I do not know of any problem connected with cancer as a disease which is not capable of explanation upon the basis of a hypothesis like that. We shall see, if we continue to be patient and painstaking and work with some vision, if this be the truth or not.

It is often held that the incidence of cancer has increased during the past fifty years. This is very difficult to prove. Several possible fallacies come into the argument, especially improved diagnosis and better methods of registration. Cancer is a disease of the second half of life, indeed to a large extent it is a disease of old age. An increase in the number of cases of cancer may therefore be no more than a confirmation of what we know already—that the expectation of life has risen by 15 years during the past two generations. Old age brings not only its own infirmities but also its own diseases. Senility is itself a disease and it is on the increase. If we go on as we are going, a man who writes in your columns in sixty years' time will probably stress senility as being one of the most striking of the "new" diseases.

It seems to me that certain generalisations emerge from this discussion of "old" and "new" diseases. There has certainly been a swing over as it were, from those frequent and devastating gusts of acute and virulent germ diseases to more insidious and chronic maladies. Life was very precarious in Elizabethan days and in the centuries immediately preceding and following them. We must remember that what we know to-day about those terrible scourges refers only to the big epidemics; there must have been thousands of what are called "sporadic" cases, and there were places where some of these pests made themselves endemic. So that, in addition to the big waves of fevers that brought death in great swathes, there was the steady, constant loss of life in these other ways. Sydenham estimated that in his day fever accounted for 70 per cent. of the whole of medical practice. To-day this figure is not more than 10 per cent.

* * *

The Elizabethan was very alive to-day and very dead to-morrow. If we exclude influenza, which still seems to possess something elemental in its potentialities—that is, judging by 1918–19 rather than by the mild epidemic we have just experienced—there are no diseases nowadays that spell violence as diseases did in Sydenham's time. Unless we call venturing upon the streets and roads a disease. Or war; which is, after all, the greatest of all modern diseases, though it is a disease of the mind and not of the body. It has existed since the race began, but its casualties were formerly trivial by comparison with those due to disease. To-day the proportions are reversed. The Great War cost us over 700,000 lives and 2½ million total casualties. At the beginning of 1920 there were just over 1 million war pensioners and even in March of 1936 there were 400,000 permanent pensions being paid. Of these 40,000 were on account of mental and nervous diseases. Science has reduced enormously the casualties due to the attack of the microbe upon man; but science has increased in much greater proportion the casualties due to the attack of man upon man.

Then, again, the question arises, what of the integral staff of our bodies and of our minds? It

looks as though our enemies have become the men of our own house, rather than those who have got entrance from without. Why is this? Has something gone wrong with the control? Or, to change the metaphor, are we discharging the battery at too high, and charging it at too low, an amperage? *Why* are we becoming the preys of our own saprophytes? *Why* is the tubing of our blood-vessels and why are the working parts of the pump wearing so badly? These questions cannot yet be answered.

* * *

We are living longer; that is one of the most striking results of the past fifty years of hard but intelligent work on the part of those who have inspired and administered our public health services. Does someone ask *cui bono?* Why live longer if we cannot live more healthy and more happily? For it certainly does look as though, for many of us, our lives become "thin spun" long before the "abhorred shears" are due—so why take such pains to prolong them? Is our meticulous care of our shadowy present worth it? Is it worth suggesting security to ourselves in a gas-mask and an (alleged) bomb-proof cellar? But surely the answer is with us who do the living? How *long* a man lives depends upon his ancestors and the state of the public hygiene. How *healthily* and how *happily* he lives depends upon himself. Also be it observed that mere absence of disease is not enough. Therefore we welcome an attempt by the State to organise the national physique.

And later, but I trust not too late, perhaps we might do something to organise the national mind. And so get back some of the *zest* for living that we seem to have lost, and the ability to enjoy this immunity from disease that we have accumulated.

*** *Next month A Taddygaddy will be responsible for these columns.*—ED. L.

PANEL AND CONTRACT PRACTICE

Suggested Amendment of Regulations

FROM the *Bulletin* of the Glasgow burgh panel committee we learn that the Scottish Association of Insurance Committees is suggesting amendments to the medical benefit regulations in the following particulars:—

1. That a medical partnership might be allowed to have a list of patients (instead of the individual partners).
2. To prohibit medical superintendents of hospitals accepting patients for treatment in the hospital under national health insurance.
3. To restore to insured persons unrestricted freedom of change of doctor.
4. To provide, in the case of an investigation by the medical service subcommittee, that no person shall be assisted by "counsel, solicitor, or other professional agent."
5. To confer upon insurance committees a right of entry for purpose of inspection of insurance practitioners, surgery and waiting-room accommodation.
6. To oppose the representations which have been made to the Department of Health for Scotland for a national capitation rate instead of an areal one.
7. To make it clear that committees have the right to refuse application by a doctor to join the medical list if, in the opinion of the committee, it is not practicable—e.g., on account of distance—for him to give a proper service, the doctor to have the right of appeal to the department.
8. To provide that, in the case of a transfer of practice, the doctors pay the whole expense of issue of notices to insured persons.
9. To relieve practitioners of responsibility for treatment in a hospital of a person admitted thereto for treatment.
10. To ensure that under "acceptance of fees" nothing shall preclude acceptance by a practitioner of fees under Road Traffic Act.
11. To make it necessary for a practitioner to obtain the consent of the committee to his absence for more than one month.
12. To give a patient who is being treated by a partner the right to require the personal services of the practitioner in whose list he is included.

It seems to us unlikely that insurance practitioners will welcome all these proposals. The suggestion that they should bear the whole expense of notifying patients of transfers of practice will certainly be opposed. Regulation 34 provides that the medical service subcommittee may, if they think fit, permit any person concerned in an investigation to be assisted in the presentation of his case by some other person; provided that no person shall be entitled to appear in the capacity of counsel, solicitor, or other paid advocate. It is not clear that the secretary of a panel committee might not be regarded as a professional agent. Proposals numbered one and twelve appear to be mutually exclusive. Practitioners will no doubt object to a right of surgery inspection being conferred upon insurance committees; if any visitation is necessary it should be made jointly, as at present, by representatives of the panel committee and of the insurance committee.

Medical Mortgages: A Correction

A note appearing in this column on Feb. 13th referred to a case in which a firm of solicitors complained to an insurance committee. Their complaint, in effect, was that, although the committee was aware of the mortgage of the practice and had, in fact, been paying the panel fees pursuant to the mortgage to other than the practitioner, it had without notice to their clients allowed something to happen to their clients' prejudice. We now learn that the mortgage in question was arranged, not by a firm of moneylenders, as stated, but through the scheme for assisting medical practitioners sponsored by the Medical Practitioners' Union. Our note, therefore, contained a misstatement of fact, which we regret; and the misapprehension led us into an implied criticism that certainly would not have been made if we had been aware of the standing of the parties. We are informed that the matter was promptly adjusted through the borrower's solicitors and before our note was published, and that the insurance committee was immediately advised of the fact.

A Disputed Point in Emergency Treatment

An insurance practitioner, Dr. A, on visiting one of his bedrid insured patients decided that he should be removed to an institution. He arranged accordingly through the public assistance official, and in due course a nurse was sent, but upon arrival at the patient's bedside she doubted whether the patient was fit to be removed to hospital. She therefore requested a visit by Dr. A in order that he might clear her mind of the doubt as to the patient's fitness to be removed. Dr. A not being available, the nurse obtained the advice of

Dr. B, another local insurance practitioner, who expressed the opinion that the patient was unfit to be removed from his home. Dr. B rendered an account against the public assistance committee for a home visit to the case on the ground that the service rendered was for and on behalf of that committee. It was decided eventually that the assistance committee were not required to pay the account; the matter was one for settlement by the insurance committee, since the advice called for and given was in the best interests of the insured person and, as such, was covered by the regulations and terms of service. This decision seems to be the right one. The second practitioner was called in not so much for the purpose of giving treatment as to certify the condition of the patient, and there is no doubt that it would have been the duty of the responsible practitioner had he been available to comply with the nurse's request for his services on behalf of an insured person.

PUBLIC HEALTH

A National Health Campaign

THE Central Council for Health Education has been invited by the Ministry of Health and the Board of Education to coöperate in a national campaign to increase the use of the health services. At the back of the suggestion is the experience that antenatal clinics, welfare centres, and opportunities for dental treatment are not made use of to their full capacity and that a well thought out central publicity scheme, combined with local personal interest, might soon make the health services better known and more widely attended. The campaign would start in October on general lines with the sympathetic interest, it is hoped, of the press and the B.B.C. In the following months effort would be concentrated on particular services: maternity and child welfare in November and December, home and school in January, social hygiene and tuberculosis in February and March. The principal cost of the campaign will be borne by the Government, but it is expected that every locality will add local colour to the posters, folders, bookmarks, or whatnot by overprinting on them matters of local interest. A schedule has been sent out to clerks of councils and medical officers of health asking for some idea of the quantities which could be distributed during each section of the campaign. Reply is requested before April 14th to the secretary of the Central Council for Health Education, 1, Thornhaugh-street, Russell-square, London, W.C.1.

A Fracture Clinic

The Grimsby and District Hospital, which serves a population of about 140,000, is establishing a special clinic for the treatment of patients suffering from fractures, deformities, and injuries to bones and joints, and has made arrangements with the Grimsby corporation by which the corporation contribute towards an honorarium for the surgeon in charge. The corporation will also contribute towards the cost of maintaining patients for whom they are financially responsible, and for additional and increased services required in the ancillary departments. The hospital is to be approved by the Ministry of Health and the Board of Education for short-term orthopædic cases, and the coöperation of Harlow Wood Orthopædic Home is to be obtained for long-term cases. Public assistance cases are to be transferred back to the local authority institution for the period when no active treatment is required and readmitted to the hospital when necessary. Mr. R. Guy Pulvertaft, who is at present surgical registrar in the orthopædic and fracture department of Liverpool Royal Infirmary, has been put in charge of the new department, his appointment being approved by the Grimsby corporation. He will live in the town and will engage only in consulting orthopædic practice. The Central Council for the Care of Cripples have undertaken to send a trained organiser to inaugurate an after-care orthopædic service on a regional basis.

L.C.C. Hospital Budget

Capital expenditure on general and special hospitals under the control of the London County Council is estimated at £100,000 for the year 1937–38. The budget for maintenance is as follows:—

	£		£
General hospitals ..	550,000	Staff	35,000
Infectious hospitals ..	150,000	Miscellaneous expenses	3,000
Sanatoria	35,000	Sanitary officers ..	15,000
Children's hospitals ..	60,000	Public vaccinators ..	150
Pathological laboratories	10,000	Diagnosis and treatment of venereal diseases	55,000
Maintenance in hospitals other than those provided by the Council, &c. ..	35,000	Maternity and child welfare	5,000
District medical service	7,000	Midwives service ..	1,000
London ambulance service	30,000	Other public health services	150

Medical Members of the L.C.C.

Medicine is now represented as follows on the various committees of the London County Council:

Education.—Dr. G. A. Gillison.
Entertainments.—Dr. Bernard Homa.
Establishment.—Dr. Homa and Miss E. Rickards.
Finance.—Dr. S. W. Jeger.
General Purposes.—Dr. F. Barrie Lambert.
Hospitals and Medical Services.—Dr. C. W. Brooks Dr. S. Monckton Copeman, Mr. Somerville Hasting, (chairman), Dr. Jeger, Miss Rickards (vice) with Dr. H. Winch and Mr. R. H. P. Orde (coöpted).
Mental Hospitals.—Dr. Barrie Lambert with Dr. Doris Odlum (coöpted).
Parks.—Dr. Barrie Lambert.
Parliamentary.—Dr. Jeger.
Public Control.—Dr. Jeger.
Supplies.—Dr. Barrie Lambert.
Town Planning.—Dr. Gillison.
Welfare of the Blind.—Dr. Brook (chairman).

ST. MARK'S HOSPITAL, LONDON. — The annual general meeting of the governors of this hospital was held on March 18th. The Lord Mayor, who presided, said that during the year 1936, 1089 patients were admitted to the wards of the hospital and 1286 operations were performed. The out-patients' attendances numbered 10,999, the highest recorded in the history of the hospital. It was hoped that the new nurses' home would be ready for occupation next January. The home, which is the first part of an extension scheme, would accommodate 50 nurses and 27 maids, and it was proposed to convert the space vacated in the hospital into a self-contained block for paying patients, and a second operating theatre would be provided, and additional public beds. The pathological and cancer research, X ray and out-patient departments would also be enlarged and modernised. The response to the appeal for £50,000 to pay for these extensions had now reached the sum of £14,000. The income of the hospital during the past year had been £14,422, as against £17,300 in the previous year, and the expenditure had amounted to £16,276.

PARLIAMENTARY INTELLIGENCE

NOTES ON CURRENT TOPICS

Deaf Children (School Attendance) Bill

IN the House of Lords on March 18th the Earl of CRAWFORD moved the second reading of the Deaf Children (School Attendance) Bill which has already passed through the House of Commons without opposition. The proposal was, he said, that the age for the compulsory attendance of deaf school-children, which was at present 7 years should become 5 in the future. This was the age of attendance in Scotland and informed opinion in England was unanimous in thinking that the same age should be imposed here. Great progress had been made in recent years in the education of deaf children and he was glad to say that the number of deaf children had been reduced, because deafness as a sequela of such illnesses as measles or scarlet fever was being reduced by increased medical knowledge. But deaf children required a great deal of education in order to be taught to speak intelligently. In normal education the last two years of the educational career were the most valuable; in the case of deaf children it was the first two years because a child, through the influences of the home or the absence of education, might either develop a peculiarity of inflection of voice, or insistence upon certain aspects of the voice, which were very deleterious to its future, or else it heard wrongly. The younger the child, therefore, the better the chance of education. So far as he knew the local education authorities, the teaching profession, and the medical profession agreed on this point, so that the authority for this proposal was very strong indeed. In matters of speech and audition the intuition of a child aged 5 was greater than of one aged 7, and at 7 than at 9. The experience of parents coincided with that of teachers, the public authority and the medical world, and he believed that the Bill was unanimously supported. In Manchester, where the subject was more developed and more studied than in any other town, no fewer than 90 per cent. of the children who were congenitally deaf learned to use the human voice perfectly and 90 per cent. of those children got employment when they left school.

The Earl of LUCAN, speaking for the Government, said that it did not seem necessary now to continue this difference on behalf of these young children. He was informed that the majority of deaf children aged 5–7 now attended school voluntarily. Various organisations connected with the education of the deaf had from time to time urged that legislation to this effect should be introduced and only last summer the President of the Board of Education had said in the House of Commons that he was ready to agree to legislation on the subject provided that it was entirely uncontroversial and that it was supported by local authorities and other organisations. The Government were very glad to give this Bill their support. The cost of the change was estimated at not more than £5000 a year.

The Bill was read a second time

Factories Bill in Committee

The Factories Bill was further considered by a standing committee of the House of Commons on March 16th and 18th.

A SAFEGUARDING CLAUSE

On Clause 17 (which provides that in the case of any machine in a factory intended to be driven by mechanical power, certain specified parts shall be so sunk, encased, or otherwise effectively guarded as to prevent danger, and that any person who sells or lets on hire for use in a factory any machine intended to be driven by mechanical power which does not comply with the clause shall be guilty of an offence and liable to a fine not exceeding £100), Mr. SILKIN moved an amendment to the proviso that the clause should not apply to machinery constructed before the passing of the Bill into law. He proposed that the words "in use" should be substituted for the word "constructed."—Sir J. SIMON opposed the amendment which was negatived.—Mr. VIANT said that machinery constructed prior to the passing of the Bill into law could, whoever purchased it, be installed in a new factory in spite of constructional defects.—After further discussion the clause as amended was agreed to.

DANGEROUS LIQUIDS

Clause 18 (which provides that certain kinds of vessels containing dangerous liquids shall be securely covered or fenced or, where that is not practicable, all practicable steps shall be taken to prevent any person from falling into the vessel), Mr. GEOFFREY LLOYD, replying to several hon. members, said that Home Office officials would examine the position to see whether any supplementary provision was needed with regard to movable vessels containing dangerous liquids, and the clause was agreed to.

Clause 19 (which deals with safety in relation to self-acting machines) was agreed to.

DANGER TO WOMEN AND YOUNG PERSONS

On Clause 20 (which provides that a woman or young person shall not clean any part of a prime mover, or of any transmission machinery while the prime mover or transmission machinery is in motion, and shall not clean any part of any machine if that cleaning would expose them to risk of injury from any moving part of that machine or adjacent machinery).—Mr. G. MANDER moved one of a series of amendments which were designed to extend the prohibition in the clause to all workers in factories unless the cleaning was performed by means of any mechanical device which enabled the person doing the cleaning to remain at a distance from the prime mover or transmission machinery which, in the opinion of the chief inspector, provided for their safety.—Sir J. SIMON said that the clause represented an important advance in the law, especially the latter part. It was no good laying down rules which were in conflict with inescapable practice, or having a law which in his opinion would not be generally observed. The proportion of accidents in factories while cleaning machinery was much higher among women and young people than among men.—Mr. R. J. DAVIES said that the clause did go a great deal further than the present law.—After discussion the amendment was withdrawn and the clause was agreed to.

ELEVATORS AND STAIRS

Clause 21 (which provides among other things that every hoist or lift shall be of good mechanical construction, sound material, and adequate strength, and be properly maintained; and that every hoistway or liftway shall be efficiently protected by a substantial enclosure fitted with gates, the enclosure being such as to prevent, when the gates are shut, any person falling down the way or coming into contact with any moving part of the hoist or lift) was agreed to with minor amendments.

Clauses 22 and 23 dealing with chains, ropes, lifting tackle, cranes, and other lifting machines were also agreed to.

Clause 24 (providing that all floors, steps, stairs, passages, and gangways shall be of sound construction and properly maintained; and dealing also with handrails) was agreed to with minor amendments, as well as Clauses 25 and 26 relating to safe means of access from workshops and precautions in places where dangerous fumes are liable to be present.

Clause 27, which lays down the precautions that shall be taken with respect to explosive or inflam-

mable dust gas vapour, or substance, was agreed to with a minor amendment.

Clause 28, which lays down safety provisions with respect to steam boilers, was also agreed to with minor amendments, as well as two further clauses dealing with steam receivers and steam containers and air receivers.

A clause was also approved empowering the chief inspector to grant exceptions from some of the safety provisions where he was satisfied that they could not reasonably be applied, another enacting the precautions that are to be taken with respect to water-sealed gasholders, as well as Clause 33, providing in detail for means of escape from factories in case of fire.

In the House of Commons on March 16th the Physical Training and Recreation Bill was introduced and read a first time. On March 19th the financial resolution in connexion with the Special Areas Bill was agreed to in Report and the Bill was brought in and read a first time.

On March 18th Mr. BALDWIN, Prime Minister, announced that the Chancellor of the Exchequer would open his Budget on Tuesday, April 20th.

In the House of Commons on March 22nd Sir KINGSLEY WOOD, Minister of Health, presented the Widows', Orphans,' and Old Age Contributory Pensions (Voluntary Contributors) Bill, a measure to extend the classes of persons who can become insured as voluntary contributors for the purposes of widows', orphans', and old age contributory pensions, and otherwise to amend, in relation to voluntary contributors and women engaged in certain excepted employments, the enactments relating to such pensions and to health insurance, to amend Section 30 of the Widows', Orphans', and Old Age Contributory Pensions Act, 1936, and Section 4 of the Northern Ireland (Miscellaneous Provisions) Act, 1932, and for purposes connected with the matters aforesaid.

The Bill was read a first time.

QUESTION TIME

WEDNESDAY, MARCH 17TH

British Hospital Ship in Spanish Waters

Mr. MANDER asked the Secretary of State for Foreign Affairs which of His Majesty's ships would maintain touch with His Majesty's diplomatic and consular representatives at Valencia, Bolivia, Palma, and elsewhere in Spanish ports during the next few weeks.—Mr. EDEN replied: It has been arranged that His Majesty's hospital ship *Maine* together with at least one destroyer and one depôt ship, shall be available on the north-east coast of Spain and Majorca for the purpose to which the hon. Member refers. In addition to these I understand that a cruiser is at present available.

Alcohol and Road Accidents

Mr. WILSON asked the Home Secretary whether, in the training of the new 800 police patrols, any instructions would be given in the steps to be taken to make effective the advice in the Road Code to motorists against taking alcohol during or before driving.—Mr. GEOFFREY LLOYD, Under-Secretary, Home Office, replied: I think the hon. Member must refer to the paragraph which says: "Before using the road be sure that your alertness or sense of caution is not affected by alcohol or fatigue." I do not think this is a provision which could be very well enforced by the police.

Lunacy and Mental Deficiency Statistics

Sir RALPH GLYN asked the Minister of Health the present number of certified lunatics in the asylums of England and Wales under the administration of county authorities; and how these figures compared with the numbers in 1926 and 1913.—Sir KINGSLEY WOOD replied: The number of certified mental patients in mental hospitals provided by local authorities (i.e., county and county borough councils and a certain number of non-county borough councils) in England and Wales was as follows:

1937 (Jan. 1st)	..	123,609
1926 ,,	..	107,836
1913 ,,	..	103,842

Sir RALPH GLYN asked the Minister of Health how many mentally-defective individuals were under the care of mental hospitals and asylums and how many were boarded out under licence; and how these figures compared with those of 1926 and 1913.—Sir KINGSLEY WOOD replied: The Mental Deficiency Act of 1913 did not come into operation until April 1st, 1914, but the numbers of mentally defective patients under care in institutions provided under the Mental Deficiency Acts, 1913–1927, and on licence are as follows:—

	In institutions.	On licence from institutions
1936 (Jan 1st)	.... 37,819	2,437
1926 ,,	.... 20,297	Not available.

THURSDAY, MARCH 18TH

Holidays with Pay

Mr. ROWSON asked the Minister of Labour the names of the members of the commission to inquire into the question of holidays with pay; and when they would commence their duties.—Mr. ERNEST BROWN replied: I hope to be able to make a statement on this matter very shortly.

Textile Industry and 40-hour Week

Mr. WILLIAM ROBINSON asked the Minister of Labour whether any instructions had been given to the British delegation to the world textile conference at Washington as to their attitude in the event of a 40-hour week in the textile industry being proposed by some other delegation.—Mr. ERNEST BROWN replied: The conference at Washington in April is a technical conference, the object of which is to consider all those aspects of the textile industry which directly or indirectly may have a bearing on the improvement of social conditions in the industry. The question of adopting a convention for a 40-hour week for the industry is to be considered at the annual conference of the International Labour Organisation in June. The attitude of H.M. Government towards the latter question was stated in my speech at the annual conference last year.

Birching of Young Boys

Mr. MUFF asked the Home Secretary whether he was aware of the public concern caused by the action of various magistrates in ordering the birching of young boys for minor offences; and whether he would institute an inquiry into the desirability of abolishing this form of punishment.—Sir JOHN SIMON replied: There were 164 cases of this punishment being ordered in juvenile courts in 1936 and 218 cases in 1935. This is a subject on which many people have strong views on one side or the other and in which the practice of different juvenile courts differs widely. I have therefore decided to appoint a small departmental committee to consider the whole matter. If, however, the report of such a committee is to be of value its members must be selected with a view to securing that they approach the subject with an open mind, and I shall not be able to make an announcement of the composition of the committee without full consideration of the appropriate personnel.

Hours of Employment of Young Persons

Mr. WALKDEN asked the Home Secretary whether he had given consideration to the report of the departmental committee on the hours of employment of young persons in unregulated occupations; and whether he intended to give legislative effect to the committee's recommendations.

Mr. DENMAN asked the Home Secretary whether he had considered the statement in the report of the Committee on Hours of Employment of Young Persons in unregulated occupations that it was essential that immediate steps should be taken to afford statutory protection to such young persons; whether he would introduce legislation without unnecessary delay; and whether, in particular,

he would adopt the recommendation to extend the current Factories Bill so as to include young persons employed in connexion with factories, docks, and warehouses.—Sir JOHN SIMON replied: The report of the committee, which was only published a week ago, is now under careful consideration, but I regret that I am not in a position at present to make any statement.

Mr. DENMAN: Can my right hon. friend answer the last part of my question referring to the current Factories Bill. Are the Government making up their minds rapidly on that point?

Sir. J. SIMON: I agree that it would be useful to get a decision in time for the present Factories Bill, but the report is a most important one; it was published only last week and it must be examined thoroughly.

Night Work and the Health of Juveniles

Mr. DENMAN asked the Minister of Health whether he had or will obtain from approved societies any information as to the effect of nightwork in factories on the health or physique of young persons either at the time or in subsequent life.—Sir KINGSLEY WOOD replied: I regret that I have not the information desired by my hon. friend, and the records of approved societies do not contain the necessary material from which the information could be obtained.

Influenza and the Common Cold: Medical Research

Mr. LEES-JONES asked the Lord President of the Council (1) over what period experiments and research had been taking place, with the assistance of the Medical Research Council, towards finding a medium for the prevention and cure of the common cold and influenza; and what the cost had been to date; and (2) what progress had been made by or under the ægis of the Medical Research Council within the past 12 months towards finding a medium for the prevention and for the cure of the common cold and influenza.—Mr. RAMSAY MACDONALD replied: Research on influenza and the common cold has been assisted by the Medical Research Council from time to time. In particular, the investigations into influenza which are now being made by the Council's own staff at the National Institute for Medical Research have been in progress since 1933. An account of recent progress is given in the annual report of the Medical Research Council for the year 1935–36, presented to Parliament and published last Tuesday. During the past year there has been further confirmation from different parts of the world that the virus originally isolated at the National Institute for Medical Research in 1933 is the infective agent which causes epidemic influenza, and on this basis attempts to devise preventive measures are being continued. Substantial progress has been achieved by these scientists working in the service of the British Government, and there is considerable ground for hoping that a satisfactory means of producing at least temporary immunity will be evolved. Earlier methods of inoculation against influenza have been unsatisfactory, because they were not based on the accurate knowledge, which is now believed to be available, regarding the nature of the causative agent.

The Council are not at the moment supporting any direct attack upon the common cold, but the problems are closely related, and an advance against the one disease is likely to assist attack on the other. A statement which has been made in the Press to the effect that the Council has, as a matter of policy, abandoned work on the common cold is without foundation. It is not possible to state the cost of this investigation separately from that of other work involving the same personnel and equipment.

Sale of Unsuitable Spectacles

Mr. ROBERT TAYLOR asked the Minister of Health if he had any information as to the detrimental effect caused by the wearing of spectacles sold by certain stores and by pedlars with no qualifications as opticians; and if he proposed to take steps to prohibit such sales.—Sir KINGSLEY WOOD replied: I have no direct evidence of damage caused by the wearing of the spectacles referred to and I have no power to prohibit their sale. So far, however, as insured persons are concerned, it is proposed to make regulations to the effect that spectacles provided by way of additional benefit can only be obtained from opticians recognised by a committee to be set up under the regulations.

The Construction of Gas Masks

Mr. CREECH JONES asked the Home Secretary what was the flocculent material being used as a filter for smokes in the gas-masks now being manufactured in Blackburn for free distribution to the civilian population; and what (if any) had been the percentage of smoke which had passed through this material when subjected to experiments.—Mr. GEOFFREY LLOYD replied: The material employed as a filter for smokes in the gas masks now being made at Blackburn for distribution to the civilian population consists of a mixture of wool and asbestos. Extensive tests with toxic smokes have proved that the respirator will afford protection against all such poison gases under the conditions which would arise in practice.

Death Following Vaccination

Mr. GROVES asked the Minister of Health whether he had made inquiries into the death of Frank A. Barker, aged 24, of Grantham-road, Manor Park, which was attributed by the Ilford coroner to the effects of vaccination; what was the source of the lymph used; whether rabbits had been used in its manufacture; whether the young man's employers made vaccination a condition of employment; and, if so, whether, under the Workmen's Compensation Act, his widowed mother would receive damages.—Sir KINGSLEY WOOD replied: The answer to the first part of the question is in the affirmative. With regard to the second and third parts, I am informed that the lymph used was obtained from a commercial firm, and I understand that rabbits were not used in connexion with its manufacture. I have no information as to the fourth part of the question, and I am unable to express any opinion in regard to the last part.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED MARCH 13TH, 1937

Notifications.—The following cases of infectious disease were notified during the week: Small-pox, 1 (Ripley, U.D., Derbyshire); scarlet fever, 1664; diphtheria, 1086; enteric fever, 30; pneumonia (primary or influenzal), 1209; puerperal fever, 54; puerperal pyrexia, 110; cerebro-spinal fever, 21; acute poliomyelitis, 3; acute polio-encephalitis, 2; encephalitis lethargica, 3; dysentery, 25; ophthalmia neonatorum, 81. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on March 19th was 3336, which included: Scarlet fever, 857; diphtheria, 1060; measles, 23; whooping-cough, 606; puerperal fever, 20 mothers (plus 14 babies); encephalitis lethargica, 282; poliomyelitis, 1. At St. Margaret's Hospital there were 16 babies (plus 5 mothers) with ophthalmia neonatorum.

Deaths.—In 122 great towns, including London, there was no death from small-pox or enteric fever, 0 (0) from measles, 3 (0) from scarlet fever, 26 (6) from whooping-cough, 34 (6) from diphtheria, 48 (14) from diarrhœa and enteritis under two years, and 144 (12) from influenza. The figures in parentheses are those for London itself.

Birmingham reported 3 deaths from measles. Fatal cases of whooping-cough were scattered over 15 great towns; Middlesbrough had 3. Fatal diphtheria was reported from 20 great towns; 3 each from Bradford and Sheffield.

The number of stillbirths notified during the week was 305 (corresponding to a rate of 46 per 1000 total births), including 46 in London.

MIDDLESEX HOSPITAL.—At a meeting of the board of this hospital on March 17th it was announced that the anonymous donor of the nurses' home had given a further £50,000 for its extension, thus bringing his benefactions to the hospital to almost £400,000.

MEDICAL NEWS

University of Oxford

At a congregation to be held on May 4th decrees will be put forward proposing that Mr. G. R. Girdlestone be constituted Nuffield professor of orthopædic surgery while holding the office of clinical director of the Wingfield-Morris Orthopædic Hospital. Mr. Girdlestone will receive no salary as professor but will not be debarred from private practice. He will hold the title till he is 65 or until he resigns from his position at the hospital, if he should do so before he reaches the age-limit. It will also be proposed that Dr. J. A. Gunn, professor of pharmacology at Oxford, be appointed Nuffield professor of therapeutics while holding office as director of the Nuffield Institute of Medical Research. He will receive £1200 a year as Nuffield professor.

University of London

Mr. H. L. Eason has been appointed to the post of principal of the University from July 1st, 1937, to Sept. 30th, 1941.

Mr. Eason, who was born in 1874, was educated at University College, London, and at Guy's Hospital. He qualified in medicine in 1898, and took his M.D. degree in 1901 and his M.S. degree in 1902, when he became warden of the medical college at Guy's. He held this post till 1906, when he was appointed ophthalmic surgeon to the hospital. From 1904 to 1912 he was also dean of the medical school. During the war he served with the Royal Army Medical Corps as consulting ophthalmic surgeon to the forces in the Mediterranean, Egypt, and Palestine, and was mentioned in dispatches. He was awarded the C.M.G. in 1917 and the C.B. in 1919. In 1920, after his return, he was appointed to his present position of superintendent of Guy's Hospital, retaining his appointment on the honorary medical staff. He is also consulting surgeon and member of the medical advisory council of the Admiralty. Last year the Royal College of Surgeons of England elected him to their fellowship. He has represented the faculty of medicine on the senate of the university since 1911, and two years ago was appointed vice-chancellor. He has been chairman of the library committee, the finance committee, and the academic council. Since 1925 he has represented the university on the General Medical Council, of which he is now junior treasurer. From 1924 to 1926 he was a member of the departmental committee of the Board of Education on the reconstitution of the university, and from 1925 to 1930 a member of the departmental committee of the Ministry of Health on post-graduate medical education. He is a member of the govening body of the British Postgraduate Medical School, and is one of the representatives of the Ministry of Health on the General Nursing Council.

University of Leeds

Dr. W. MacAdam, formerly professor of clinical medicine, has been elected to the chair of medicine in succession to Dr. G. W. Watson, and Dr. J. le F. C. Burrow, formerly professor of pharmacology and therapeutics, to the chair of clinical medicine. Dr. S. J. Hartfall has been appointed to the vacant chair with the title of professor of therapeutics and applied pharmacology.

Dr. Hartfall is a graduate of the University of Leeds in science and medicine. He took his M.B. in 1926, and in 1930 became a member of the Royal College of Physicians of London. The following year he graduated as M.D. with distinction. After holding many resident posts at Leeds General Infirmary he went to Guy's Hospital as medical assistant, and in 1932 received a Leverhulme scholarship from the Royal College of Physicians for work on anæmia and gastric secretion. Dr. Hartfall was elected hon. physician to Leeds Public Dispensary in 1934, and assistant physician to the General Infirmary in 1936, and is an hon. demonstrator of pathology in the university. His published work has been largely concerned with the function of the stomach, but our readers will also recall his valuable reports on the use of gold in rheumatic diseases, as practised at the Leeds Public Dispensary. Dr. Hartfall holds a territorial commission in the Royal Army Medical Corps.

Miss Hilary Long has been appointed to the newly instituted readership in surgery.

Miss Long was a student at King's College, London, where she obtained her B.Sc. in 1928 and her M.Sc. in 1935. She qualified in medicine in 1931, and in the same year obtained her M.B. Lond. with honours. She has held the posts of house surgeon and radium registrar at King's College Hospital. From 1932 to 1933 she worked in Vienna with a travelling studentship from the University of London, and on her return took the F.R.C.S. Eng. Miss Long was for some time resident surgical officer at the Royal Manchester Children's Hospital.

Dr. William Goldie, who has been doing research work in rheumatism at the Leeds Public Dispensary, has been given the status of research fellow by the University. Dr. J. C. Coates has been appointed demonstrator in anatomy.

Royal College of Physicians of London

At a meeting of the College held on March 22nd Viscount Dawson of Penn was re-elected president. Sir Francis Fremantle was appointed a delegate to the eighth Imperial Social Hygiene Council to be held in London from July 5th to 9th.

A licence to practise was granted to W. J. C. Crisp (Univ. Coll. Hosp.), and diplomas in medical radiology were conferred, jointly with the Royal College of Surgeons, upon the following candidates:—

G. G. Binnie, Frederick Constant, Mary J. Cronin, and J. M. Lees.

Diplomas in ophthalmic medicine and surgery were granted to the candidates mentioned in our issue of March 20th (p. 730).

University of Liverpool

At recent examinations the following candidates were successful:—

M.CH. ORTH.

F. C. Dwyer and T. U. Ley.

D. & M.R.E.

Part I.—M. J. Brady, J. Courtney, T. F. J. O'Farrell, and J. A. Ross, M.A.

D.P.H.

Part I.—E. Agius, J. A. Bentham, R. T. Bowes, H. R. G. Davies, A. Dodd, Bessie Dodd, J. G. Hallwood, and Joy C. Lowe.

D.T.M.

P. G. Barrow, A. H. Casson, G. V. Craine, F. W. Crook, S. K. Ghose, Roberta I. Hutchinson, C. H. Kotak, I. Luanprida, G. B. Ludlam, Y. M. Siddique, S. H. R. Syed, and Luise Wislicki.

D.T.H.

J. E. O. Amegatcher, E. Bradbury, M. H. Gomaah, B. J. Green, S. Hazra, J. D. Robertson, S. Saleem, T. S. Subramaniam, and J. W. Summerheyes.

Dr. G. B. Ludlam was recommended for the A. H. Milne medal.

Naval Medical Compassionate Fund

A meeting of the subscribers to this fund will be held at 3 P.M. on April 16th at the medical department of the Navy, Admiralty, London, S.W., to elect six directors of the fund.

Joint Tuberculosis Council

A combined clinical and radiological course on diseases of the chest will be given under the auspices of this council at the Royal Chest Hospital, City-road, E.C., from Wednesday, March 31st, to Saturday, April 3rd. The lectures and demonstrations will be given by Dr. R. R. Trail and Dr. Peter Kerley. Further information may be had from Dr. William Brand, hon. secretary for post-graduate courses for the council, 8, Christ Church-place, Epsom.

Hunterian Society

A gold medal is awarded annually by this society for the best essay written by a general practitioner. The subject for 1937 is the prognosis and care of heart disease in general practice, and for 1938 the management of inoperable malignant disease in general practice. The medal for 1936 was awarded to Dr. L. J. A. Parr, of Sydney, Australia, for his essay on rheumatoid arthritis. Any registered practitioner resident within the British Empire is eligible. A copy of the rules may be had from the hon. secretary, Mr. A. E. Porritt, 27, Harley-street, London, W.1.

Oxford Ophthalmological Congress

The twenty-sixth annual meeting will be held at Keble College from July 7th to 10th. Mr. Bishop Harman and Mr. Arnold Sorsby will open the first discussion on the problem of myopia, and the Doyne memorial lecture will be delivered by Dr. D. J. Wood, who will speak on night blindness in eye disease. Papers will also be given by Prof. Joseph Imre (Budapest), Sir Walter Langdon-Brown, Mr. Tudor Thomas, Mr. Bernard Chavasse, Dr. Bernard Samuels (New York), Group-Captain J. M. Guilfoyle, and Wing-Commander P. C. Livingston. Further information may be had from the hon. secretary, F. A. Anderson, 12, St. John's-hill, Shrewsbury.

THE French Government have conferred the distinction of Officier de la Légion d'honneur upon Dr. Kenneth Eckenstein, physician to out-patients at the French Hospital, London.

Beit Fellowships for Medical Research

A notice in our advertisement columns states that an election of junior fellows will take place next July.

Welsh National School of Medicine

Dr. J. Hardstaff West has been appointed lecturer in anæsthetics, Dr. T. J. Hennelly lecturer in mental diseases, and Dr. F. R. Bettley lecturer in dermatology and lecturer in venereal diseases (male).

Medical Superintendents' Society

Dr. J. D'Ewart presided at the annual dinner of this society which was held at the Langham Hotel, London, on March 20th. It was his last chance to preside, as in two weeks' time he is retiring from the Booth Hall Infirmary for Children, Manchester, which he has ably superintended for so long. Sir Cuthbert Wallace, proposing the toast of The Society, told the story of the development in his time of his own hospital, a period coinciding with the life of the society. Both then and now there were eight surgeons and eight physicians, but the two special departments had developed out of knowledge; pathology had grown out of its one small room into an institute, and the X ray department was now more expensive even than the surgeon. He spoke of hospital construction as a compromise in which the help of members of the society was required. Dr. D'Ewart, in response, inquired why one surgeon never used the same kind of knife as any other surgeon and indicated how the surgeon could be bluffed. At Booth Hall the first X ray department was pushed into a housemaid's pantry and a neighbouring chemist brought in to work it. Dr. W. A. Ramsay, another Manchester superintendent, proposed The Guests, giving each sympathetic but searching attention; he condoled with the medical press on having to deal with writers who drew sweeping conclusions from a series of five cases, two of which were definitely proved. Dr. Adolphe Abrahams and Dr. Ernest Ward responded, the former remarking pitifully that man is the only animal who indulges in after-dinner speaking; all the others have the sense to lie down and go to sleep. Representatives of voluntary hospitals were apt to speak of the *threat* of State control by the stroke of a pen. The word, he thought, should be *promise*; he was more and more impressed by the organisation, resources, and wealth of material of the rate-aided hospitals, and there must surely come a time when the resources of all the hospitals would be pooled. At intervals during the dinner Mr. Michael North intervened with entertainment.

Fractures and Industry

The waste of working time and of money paid in compensation after accidents is so important that the Minister of Health and the Home Secretary have set up a committee to consider how they can be reduced. Mr. R. S. Hudson, Parliamentary Secretary to the Ministry of Health, spoke of the work of the new committee at a luncheon given on March 16th by the Industrial Welfare Society. He asked for the influence of the society in gaining the interest both of employers and of workers' associations. Industrialists had in some cases been sufficiently impressed with the amount of suffering caused by injuries, and with the loss of time and wages involved, as to contribute substantially to the cost of treatment. At the same luncheon Mr. H. E. Griffiths, who is organising the treatment of accidents as it is to be carried out at the new Albert Dock Hospital, under the management of the Seamen's Hospital Society, and who has been investigating in the United States the methods in various industrial centres, said he learnt four main lessons, of which the first is the importance of segregating all fractures under one control. The standard of training of the ambulance service should be high, and rehabilitation should start immediately after the accident and be kept constantly in the forefront. Good feeding, he decided, is the most important of all. At the Albert Dock Hospital out-patients are to be treated from 9 A.M. to 6 P.M., and to be given three meals a day. There is to be a shock room, wards with adjacent dressing-rooms, and a training room with gymnasium and swimming bath. The important point, he said, was to keep the injured part at work, and it is possible to do this painlessly by modern methods, for which he paid a tribute to the genius of Lorenz Böhler. Drawing attention to the vastness of the problem that had to be considered, Mr. Hudson said that in 1935 more than 1,300,000 accidents were treated at hospitals in Great Britain; these included 200,000 cases of fracture. In 1934 accidents in industry had caused 400,000 hospital cases and had involved the payment of about £4,000,000 in compensation to the victims.

Medical Diary

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane-road, W.

TUESDAY, March 30th.—4.30 P.M., Dr. Gardiner-Hill: Endocrine Diseases and Disturbances.

WEDNESDAY.—Noon, clinical and pathological conference (medical). 3.15 P.M., clinical and pathological conference (surgical). 4 P.M., Mr. J. E. H. Roberts: Surgery of the Chest.

THURSDAY, April 1st.—Noon, clinical and pathological conference (obstetrics and gynæcology). 2.30 P.M., Dr. Duncan White: Radiological Demonstration. 3.30 P.M., Mr. A. K. Henry: Demonstrations on the Cadaver of Surgical Exposures. 3.30 P.M., Dr. J. Beattie: Neoplasms of the Ovary.

FRIDAY.—2 P.M., operative obstetrics. 3 P.M., department of gynæcology, pathological demonstration.

Daily, 10 A.M. to 4 P.M., medical clinics, surgical clinics and operations, obstetrical and gynæcological clinics and operations.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.

FRIDAY, April 2nd.—4 P.M., Mr. N. Asherson: Affections of the Lingual Tonsil.

HAMPSTEAD GENERAL AND NORTH-WEST LONDON HOSPITAL, N.W.

WEDNESDAY, March 31st.—4 P.M., Dr. T. J. Hollins: The Medical Aspects of Chemical Warfare.

WEST LONDON HOSPITAL POST-GRADUATE COLLEGE, Hammersmith, W.

TUESDAY, March 30th.—10 A.M., medical wards. 11 A.M., surgical wards. 2 P.M., operations, medical, surgical, and throat clinics.

WEDNESDAY.—10 A.M., children's ward and clinic. 11 A.M., medical wards. 2 P.M., gynæcological operations, medical, surgical, and eye clinics.

THURSDAY, April 1st.—10 A.M., neurological and gynæcological clinics. Noon, fracture clinic. 2 P.M., operations, medical, surgical, and genito-urinary and eye clinics.

FRIDAY.—10 A.M., medical wards, skin clinic. Noon, lecture on treatment. 2 P.M., operations, medical, surgical, and throat clinics.

SATURDAY.—10 A.M., children's and surgical clinic. 11 A.M., medical wards.

FELLOWSHIP OF MEDICINE AND POST-GRADAUTE MEDICAL ASSOCIATION, Wimpole-street, W.

SATURDAY, April 3rd.—PRESTON HALL, Maidstone, Kent. All-day demonstration on pulmonary tuberculosis.

ST. JOHN CLINIC AND INSTITUTE OF PHYSICAL MEDICINE, 42, Ranelagh-road, S.W.

FRIDAY, April 2nd.—4.30 P.M., Dr. A. P. Cawadias: Diseases of the Bone Simulating the Rheumatic Diseases.

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION.

WEDNESDAY, March 31st.—4.15 P.M. (Royal Samaritan Hospital for Women), Dr. John Hewitt: Gynæcological Cases.

Appointments

*BOYES, KATHLEEN M., M.B. Manch., D.P.H., Assistant Medical Officer for Maternity and Child Welfare for Salford.

CLARK, GEORGE, M.B. Liverp., D.T.M., D.T.H., D.P.H., Medical Officer of Health for Ruislip and Northwood Urban District.

JEFFCOATE, T. N. A., M.D. Liverp., F.R.C.S. Edin., Hon. Assistant Gynæcological Surgeon to the Victoria Central Hospital, Wallasey.

KEKWICK, ALAN, M.B., Resident Medical Officer at the Middlesex Hospital.

LEVI, DAVID, M.S. Lond., F.R.C.S. Eng., Hon. Surgeon to the London Jewish Hospital.

MAIR, A. M., M.B. Aberd., Resident Surgical Officer at the Blackburn and East Lancashire Royal Infirmary.

MCMENEMEY, W. H., D.M. Oxon., M.R.C.P. Lond., D.P.M., Assistant Clinical Pathologist at the Radcliffe Infirmary, Oxford.

PULVERTAFT, R. G., M.B. Camb., F.R.C.S. Eng., Surgeon in Charge of the Fracture and Orthopædic Department of the Grimsby and District Hospital.

* Subject to confirmation.

TURNER, BEATRICE, M.B., F.R.C.S. Edin., M.C.O.G., Hon. Assistant Gynæcologist to Saint Mary's Hospital for Women and Children, Plaistow.
WALKER, C. W., M.D. Aberd., Hon. Physician in Charge of the Cardiological Department of the Herefordshire General Hospital, Hereford.
WARDLE, E. N., M.Ch. Orth. Liverp., F.R.C.S. Eng., Hon. Assistant Orthopædic Surgeon to the Victoria Central Hospital, Wallasey.

Medical Referee under the Workmen's Compensation Act, 1925: D. A. DAVIES, F.R.C.S. Eng., of Walmer, Kent, for the Deal, Dover, Folkestone, and Hythe County Court Districts (Circuit No. 49).

Certifying Surgeons under the Factory and Workshop Acts: Dr. A. C. EDWARD (Fillongley District, Warwick); Dr. H. B. MUIR (Auchtermuchty District, Fife); Dr. P. C. MATTHEW (St. Ives District, Cornwall); Dr. J. G. WARD (Staindrop District, Durham); and Dr. J. V. MAINPRISE (Uffculme District, Devon).

Vacancies

For further information refer to the advertisement columns.

Aberdeen Royal Infirmary.—Hon. Clin. Tutor.
Accrington, Victoria Hosp.—H.S., £150.
Bath, Royal United Hosp.—Hon. Asst. Gynæcologist and Obstetrician. Also H.S. to Ear, Nose, and Throat Dept., at rate of £150.
Bedford County Hosp.—First H.S., at rate of £155.
Birmingham.—M.O. for Maternity and Child Welfare Dept., £600.
Birmingham, St. Chad's Hosp.—H.P. and Anæsthetist, at rate of £150.
Blackburn Royal Infirmary.—Res. H.S., at rate of £175.
Bolton Royal Infirmary.—H.S., £150.
Bradford, Royal Eye and Ear Hosp.—H.S., £180.
Brighton, Royal Sussex County Hosp.—Hon. Clin. Asst. to Early Nervous Disorders Dept.
Bristol Royal Infirmary.—Clin. Anæsthetist to Dental Dept., £150.
Burnley, Victoria Hosp.—H.P. and H.S., each at rate of £150.
Burton-on-Trent General Infirmary.—H.S., £150.
Cambridge, Addenbrooke's Hosp.—Res. Anæsthetist and Emergency Officer, at rate of £130. Also H.P. and H.S. to Special Depts., each at rate of £130.
Carlisle, Cumberland Infirmary.—H.S. to Special Depts., at rate of £155.
City of London Hosp. for Diseases of the Heart and Lungs, Victoria Park, E.—H.P., at rate of £100.
Colchester, Royal Eastern Counties Institution, &c.—Asst. M.O., £400.
Colonial Medical Service.—Asst. Med. Supt., £700.
Dorchester, Dorset County Hosp.—H.S., at rate of £150.
East Riding County Council of York.—Asst. County M.O.H., £500.
Epsom County Hosp.—Res. Asst. M.O., at rate of £375.
Evelina Hosp. for Sick Children, Southwark, S.E.—H.S., at rate of £120. Also Ophth. Surgeon, 50 guineas.
Grimsby County Borough.—Asst. M.O.H., £500.
Harrogate, Royal Bath Hosp.—Res. M.O., £156.
Hosp. for Consumption and Diseases of the Chest, Brompton, S.W.—Res. Surg. O. and Asst. Res. M.O., each at rate of £150. Also three H.P.'s, and H.P. for Frimley Sanatorium, each at rate of £50.
Hosp. for Diseases of the Skin, Blackfriars, S.E.—Pathologist. Also Clin. Assts.
Hosp. for Epilepsy and Paralysis, Maida Vale, W.—Res. M.O. and H.P., at rate of £150 and £100 respectively.
Hosp. of St. John and St. Elizabeth, 60, Grove End-road, N.W.—Res. H.S., at rate of £75.
Hull Municipal Maternity Home and Infants' Hosp.—Jun. Res. M.O., at rate of £100.
Hull Royal Infirmary.—Second H.S., at rate of £150.
Isleworth, West Middlesex County Hosp.—Three Res. Asst. M.O.'s, each £400.
Lancashire County Council.—Consultant Obstetrician, £1000.
Leeds University, School of Medicine.—Demonstratorship in Department of Physiology.
Leicester, County Sanatorium and Isolation Hosp., Markfield.—Jun. Res. M.O., at rate of £300.
Leicester Royal Infirmary.—Res. Radiologist, at rate of £200.
Liphook, Hants, King George's Sanatorium for Sailors.—Asst. M.O., at rate of £200.
Liverpool Sanatorium, Delamere Forest, Frodsham.—Sen. Asst. to Med. Supt., £350.
London and Counties Medical Protection Society, Ltd., Victory House, Leicester-square, W.C.—Secretary, £1250.
London County Council.—Asst. M.O., Grade II, £250. Temp. Dist. M.O. for Area VII, £160. Also H.P. and H.S., each at rate of £120.
London Lock Hosp., 283, Harrow-road, W.—Res. M.O. to Female Depts., at rate of £175.
Macclesfield, Cheshire County Mental Hosp., Parkside.—Asst. M.O., £350.
Maidstone, Kent County Ophthalmic and Aural Hosp.—Ophth. H.S., at rate of £200.
Manchester, Ancoats Hosp.—Radiological Officer, £300. Also Res. M.O., at rate of £150.
Manchester, Booth Hall Hosp. for Children.—Res. Asst. M.O., at rate of £200.
Manchester Northern Hosp.—Med. Reg. to Out-patient Dept., £50.
Middlesbrough, North Riding Infirmary.—Cas. O., at rate of £150.
Middlesex Hosp., W.—Surgeon. Also Asst. Surgeon.
National Temperance Hosp., Hampstead-road, N.W.—H.P., at rate of £100.
Newark General Hosp.—Res. H.S., £175.
Newport, Mon., Royal Gwent Hosp.—H.P., at rate of £150. Also two H.S.'s, each at rate of £135.
Northamptonshire County Council.—County M.O.H. and Chief School M.O., £1100.
Northwood, Mount Vernon Hosp.—H.S., at rate of £150.
Nottingham and Midland Eye Infirmary.—Res. H.S., £200.
Nottingham General Hosp.—Res. Cas. O. and H.S. to Spec. Depts., each at rate of £150.
Oxford, Wingfield-Morris Orthopædic Hosp., Headington.—H.S., at rate of £100.
Paddington Green Children's Hosp., W.—H.P. and H.S., each at rate of £150.
Prince of Wales's General Hosp., N.—Asst. M.O. to V.D. Dept., £100.
Princess Beatrice Hosp., Earl's Court, S.W.—Med. Reg.
Princess Louise Kensington Hosp. for Children, St. Quintin-avenue, W.—H.S., at rate of £120–£150. Part-time Registrar, £100.
Reading, Royal Berkshire Hosp.—H.S., Cas. O., and H.S. to Spec. Depts., each at rate of £150.
Richmond, Surrey, Royal Hosp.—Jun. H.S., at rate of £100.
Royal Chest Hosp., City-road, E.C.—Med. Reg., £50.
Royal Free Hosp., Gray's Inn-road, W.C.—Res. Cas. O., at rate of £150.
Royal London Ophthalmic Hosp., City-road, E.C.—Three Out-patient Officers, each £100.
Royal Naval Medical Service.—M.O.'s.
St. Bartholomew's Hosp., E.C.—Asst. Physician.
St. Mary's Hosp. for Women and Children, Plaistow, E.—Res. H.S. and Res. H.P., at rate of £155 and £150 respectively.
Salford City.—Asst. Maternity and Child Welfare M.O., £1 11*s.* 6*d.* per session.
Salisbury General Infirmary.—H.S., at rate of £125.
Samaritan Free Hosp. for Women, Marylebone-road, N.W.—H.S., at rate of £100.
Scarborough New Hospital.—Two H.S.'s, each at rate of £130.
Shrewsbury, Royal Salop Infirmary.—Res. H.S., at rate of £160.
Somerset County Council.—County M.O.H. and School M.O., £1500.
Southampton, Royal South Hants and Southampton Hosp.—Hon. Ophth. Surgeon.
Stoke-on-Trent, Burslem, Haywood, and Tunstall War Memorial Hosp.—Res. H.P., at rate of £150.
Truro, Royal Cornwall Infirmary.—H.S., £170.
University College Hosp. Medical School, W.C.—Beit Memorial Fellowships for Medical Research, £400.
Windsor, King Edward VII Hosp.—H.S., £100.
Woking Hosp.—Part-time Radiologist.
Wolverhampton Royal Hosp.—H.S. to Orthopædic and Fracture Dept., at rate of £100.

Births, Marriages, and Deaths

BIRTHS

BEATON.—On March 14th, at Edinburgh, the wife of Surg. Commdr. D. M. Beaton, R.N., of a daughter.
CASHELL.—On March 15th, at Reading, to Hilda, the wife of Dr. Willoughby Cashell, M.B., B.S. Lond.—a son.
COPLAND.—On March 17th, the wife of Dr. J. G. Copland, M.D. Aberd., of Huddersfield, of a daughter.
DONALD.—On March 19th, at a nursing home, Hampstead, the wife of Mr. Charles Donald, F.R.C.S. Eng., of a daughter.
LAWSON.—On March 18th, at Plymouth, the wife of Surg. Lt. G. A. Lawson, R.N., of a daughter.
MARSHALL.—On March 19th, the wife of Dr. Charles Wallace Marshall, of Exeter, of a son.
RICHARDSON.—On March 17th, at Southampton, the wife of Mr. L. Aylwin Richardson, F.R.C.S., of a daughter.

MARRIAGES

SCOTT—FITZ-LANDERS.—On March 8th, at Wick, Caithness, Capt. J. A. Scott, M.B., R.A.M.C., of Aberdeen, to Sylvia Dorothy, only daughter of the late Walter and Mrs. Fitz-Landers, of Richmond, Surrey.

DEATHS

BOYD MACKAY.—On March 17th, at Winchester, Aileen Boyd Mackay, M.R.C.S. Eng., youngest daughter of the late Hugh William Boyd Mackay, of "Knockmore," Co. Antrim, Ireland.
BURGESS.—On March 15th, at Godalming, Arthur Savell Burgess, M.D. Camb., formerly of Accra, aged 55.
CURTIS.—On March 21st, at Bath, Charles Edwin Curtis, M.R.C.S. Eng., L.S.A., late of Kingsclere, in his 94th year.
DAVIDSON.—On March 17th, at South Close, Highgate, London, Alexander Dyce Davidson, M.B. Aberd., son of the late Alexander Dyce Davidson, Professor of Materia Medica in the University of Aberdeen, aged 61 years.
MCDONALD.—On March 11th, while on an Atlantic cruise, John McDonald, M.B. Glasg., of Barking, Essex, aged 67.
MALCOLM.—On March 20th, at Petersfield, Hampshire, John David Malcolm, M.B., F.R.C.S. Edin., formerly of Wimpole-street, London.
WATSON.—On March 15th, at Tsinanfu, Shantung, North China, James Russell Watson, M.B. Durh., M.R.C.S. Eng., D.P.H., in his 82nd year.
WINTER.—On March 18th, Charles Gordon Grant Winter, M.A. Camb., L.M.S.S.A., of Southsea, son of the late C. A. Winter, J.P., of Hyde Park-square, London.
WOOD.—On March 18th, at Capetown, David James Wood, M.B. Edin., Ophthalmic Specialist.

N.B.—A fee of 7*s.* 6*d.* is charged for the insertion of Notices of Births, Marriages, and Deaths.

NOTES, COMMENTS, AND ABSTRACTS

EMOTIONS OF CHILDREN

THE Medical Society of Individual Psychology is holding a series of meetings devoted to mental health in childhood, and on March 11th Dr. MARGARET LOWENFELD read a paper on the Toddler and School Child.

Emotion in childhood, she said, differed from emotion as experienced by the average adult in three ways. The adult was accustomed to say "I am happy," "I am sad"—thereby exhibiting consciousness of the self as experiencing the emotion. Only in three cases—in panic; in the overwhelming rage of *crime passionel;* and in sexual experience—was the "I" blotted out by the emotion. Children, on the other hand, found themselves constantly in this situation. There was as yet no consciousness of a separate "I": the child in a rage was, as it were, a piece of rage, and to be rightly understood must be understood as such. Secondly, in saying "I am happy," the adult implied his awareness that there had been moments before and would be moments again of which this could not truly be said; his statement contained an awareness of time. Emotion in the child, on the contrary, was timeless and while it persisted appeared to the child eternal. Finally, there were very few adults and very few adult emotional states in which the adult would not at the same time respond to a telephone bell, whereas there was no part of a young child able to respond to external stimulus while the rest of the child was swamped by emotion.

The second basic principle of which Dr. Lowenfeld spoke was the indestructibility in human beings of emotional force once aroused. She likened this to the law of the conservation of energy; if the emotion generated was not immediately manifested, evidence of conflict would be shown in physical illness, educational failure, personality deviation, or delinquency. Emotion, like the other two aspects of organic human life, the physical and intellectual, had a morphology of its own; it could and should pass through certain definite stages in its progress to maturity. For proper development at each stage, certain elements in the environments were essential, and these elements were difficult to obtain or actually missing altogether from many city children's environments. It should be the set aim of much of education artificially to supply what civilisation had removed, and Dr. Lowenfeld drew attention to the heartening success of several experiments in this direction in certain infant schools under the London County Council. She pointed out that if this scaffolding for growth were lacking, emotion remained at a more backward stage than the intellectual development of the individual and tended to express itself as illness, psychoneurosis, or delinquency. Practitioners should use caution in accepting the label "general debility," and when all causes of organic disease had been carefully eliminated, should look for a persistent emotional maladjustment of an obscure nature as a cause of the persistence of chronic ill-health.

WATER COLOURS

THE annual exhibitions of the Royal Society of Water-Colour Painters and of the Royal Institute were both opened last week, and the displays contain valuable lessons for the many medical men who now either seek their recreation in painting or who use colour as well as design in illustration of their writings. The exhibition at the Royal Institute is far larger and so provides a more varied field of example, and imitation is consequently much more invited here than at the exhibition of the Royal Society; but it is not imitation that is suggested but study of methods. The medical man who paints is generally deprived of the advantages of early academic training, and seldom finds time to obtain more detailed instructions than he can derive from knowledgable friends. He will often find it useful to study the technique of professional artists, and thus almost unconsciously obtain an insight into practical methods of procedure. Knowing how better to do the thing will develop rather than impede the instinctive design to create. In the three exhibitions of the Medical Art Society it could be seen that the intention of the painter would often have been better brought out if the methods employed by more experienced technicians had been understood and followed. The professional exhibitions which prompt this comment contain many striking pictures. They show that the English reputation for water-colour painting is being well maintained, and that its directions and ideals are varied. It is no longer necessary that the artist, in order to reach a merited popularity, should follow some current vogue. He can express himself to-day how he likes, without affronting ill-informed taste, and this is a great inducement to the amateur. But the intentions of an artist, whether in his conceptions of pattern or beauty, will be difficult to follow in the absence of sureness of execution; and that can be best obtained, as in the study of clinical medicine, by observation of expert practice.

MEDICAL MODES AND MORALS

IT is possible that Dr. Roberts has his dull moments; but if so they are not reflected in his writings. His optimism, as exemplified in an essay on A Doctor in the East-End, is of that sane kind which believes that changes in morals and modes may sometimes be for the better. In his latest book,[1] consisting mainly of articles written for various periodicals, he discusses many aspects of that complicated and unique relationship existing between doctor and patient, a relationship about which, as a practising doctor of forty years' standing, he is more competent to speak than most. Not everybody will agree with him in toto, or even, to re-coin a phrase, in subtoto; for, though never wild in his assertions, he is often arresting and provocative. He believes, for example, that if we were prepared to spend the money on it, a much greater measure of health could be bought for the community, a belief which, however unpalatable, has the ring of truth about it. With his vast experience of midwifery, averaging more than 500 cases a year single-handed over many years—an experience surely much greater than that of any obstetric specialist—his remarks on maternal mortality must command respect. The bogy of sepsis has, he thinks, led to a morbid fear of skilled intervention, even when urgently called for in labour; and, in his view, the modern general practitioner does not get enough midwifery experience.

The last part of the book, by Dr. Margaret Jackson, is an essay on medical history in which scholarship and humour are nicely blended.

ERYTHEMA MULTIFORME—Dr. B writes: "I have been troubled for the past five years with several attacks of erythema of the hands, feet, and tongue, which several dermatologists assure me is erythema multiforme. As it is frequently accompanied by vesication it causes considerable incapacity and no little discomfort. The same sites are always affected by each attack, and investigation has revealed no significant ætiological factors. The orthodox treatment has been of little value in prophylaxis, or during an attack, beyond some relief produced by large doses of ephedrine taken at the onset. If any of your readers can offer any suggestions they will be gratefully received."

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[1] Medical Modes and Morals. By Harry Roberts. With chapters on Doctors and Patients in the Past. By Margaret Jackson. London: Michael Joseph Ltd. 1937. Pp. 255. 7s. 6d.